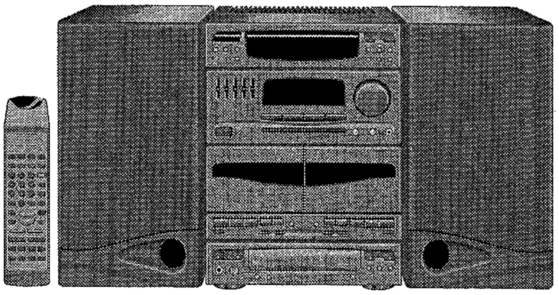
Mini System FW41/20/21/22/25/30/34/37

Service
Service
Service



Service Manual

TABLE OF CONTENTS

1 Specifications
2 Picture, connections & controls and Chip handling
3 Disassembly drawing and Repair chart
4 Service test programs, Trade mode and ESD text
5 Set Block diagram and wiring diagram
6 Power board .... Circuit diagram
Component layout
7 Selector board .... Circuit diagram
Component layout
8 Combi board .... Circuit diagram
Component layout
9 Front board .... Component layout
Circuit diagram I
Chip layout
Circuit diagram II
10 Tape core board .... Component layout and wiring diagram
Tape adjustment table
Circuit diagram I
Component layout (repeat)
Circuit diagram II
11A ECO4 Tuner board .... Component and chip layout
Tuner adjustment table
Circuit diagram
11B Tuner 92 board .... Circuit diagram
Tuner adjustment table
Component and chip layout
12 CD board .... Component and chip layout with wiring
Circuit diagram
13 Exploded view & mech stocklist .... Centre unit
Tape deck mechanism
CD mechanism
14 Electrical and Accessories stocklist
15 Safety and Laser text

CLASS 1
LASER PRODUCT
3122 110 03420

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

Published by Consumer Electronics Printed in The Netherlands © Copyright reserved Subject to modification

4822 725 24455

PHILIPS

SPECIFICATIONS

GENERAL

Mains voltage/setting	120V - 220V - 240V Serviceable Set at 120V for -/37 Set at 220V for -/20/22/28 Set at 240V for -/25/30
	120V - 230V Switchable, set at 230V for -/21/34
	110V - 220V Switchable, set at 220V for -/33
Mains frequency	50Hz - 60Hz
Clock Accuracy	< 4 seconds/day
Mains breakdown backup	< 10 minutes
Power consumption	162W max.
Dimension centre unit	555 x 306 x 301mm

TUNER : FM SECTION	TUNER 92	ECO4 *
Tuning range	87.5MHz - 108MHz 65.81MHz - 108MHz for -/34	
IF frequency	10.7MHz	
Aerial input	75Ω coaxial 300Ω screw type adaptor for -/37	
Sensitivity at 26dB S/N	< 3.5µV	< 7µV
Selectivity at 600kHz bandwidth	> 45dB	> 30dB
IF rejection	> 60dB	> 60dB
Image rejection	> 25dB	> 25dB

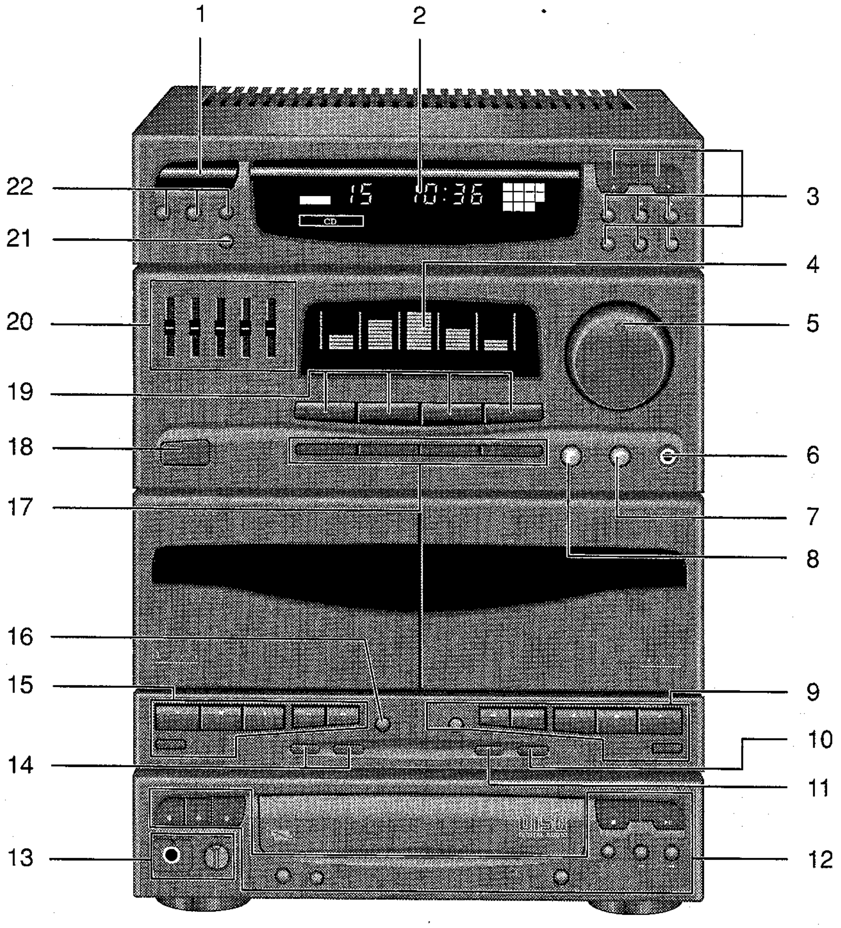
TUNER : AM SECTION			
Tuning range	MW	522kHz - 1611kHz	
	MW	530kHz - 1710kHz for -/21/37	
	LW	153kHz - 279kHz	
IF frequency		450kHz	
Sensitivity at 26dB S/N	MW	< 3.0mV/M	< 1.3mV/M
	LW	< 6.0mV/M	< 4.5mV/M
Selectivity at 18kHz bandwidth	MW	> 24dB	> 20dB
	LW	> 28dB	> 24dB
IF rejection	MW	> 35dB	> 24dB
	LW	> 40dB	> 26dB
Image rejection	MW	> 27dB	> 28dB
	LW	> 40dB	> 30dB

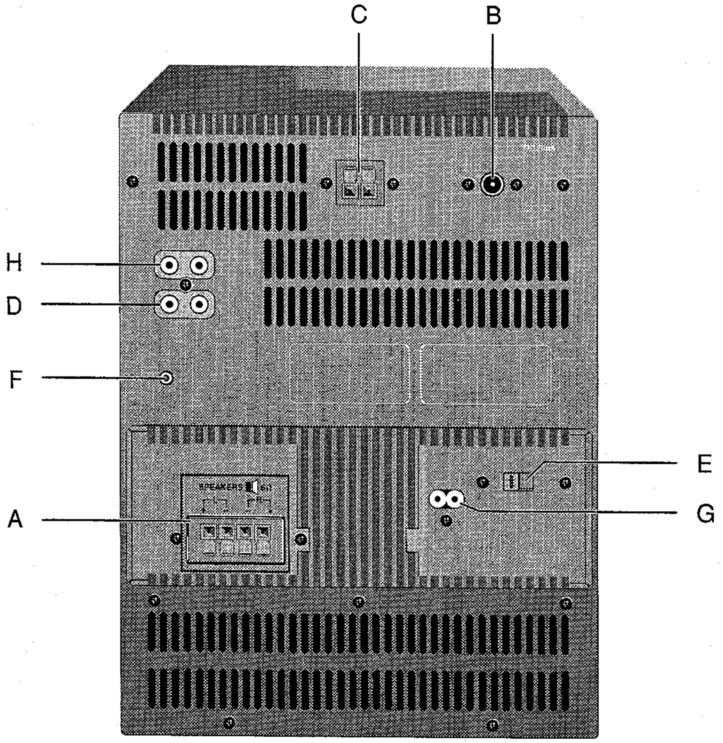
AMPLIFIER		
Output power at 10% distortion		2 x 30W -1dB
Speaker impedance		2 x 6Ω
Frequency response within -3dB		63Hz - 12kHz
Equalizer control		-6dB to +6dB
Dynamic bass boost		+7dB at 100Hz
Headphone output at 32Ω		25mW
Input sensitivity	Aux/TV	400mV at 47kΩ
	Mic	1.5mV at 600Ω
	Phono	2.7mV

CASSETTE RECORDER		
Number of track		2 x 2 stereo
Tape speed		4.76 cm/sec ± 2% 1.7 x 4.76 cm/sec
Wow and flutter		< 0.4% DIN
Fast-wind time C60		130 sec
Bias system		88kHz ± 4kHz
Recording playback frequency response within -7dB		125Hz - 12.5kHz
Signal to noise ratio	Recording	> 50dB (IEC I) > 54dB (IEC II)
	Dubbing	> 48dB
Dolby B factor		8.5dB

COMPACT DISC	
Frequency response within ± 2dB	20Hz - 20kHz
Signal/Hiss ratio	> 75dB
Distortion at 1kHz	< 0.03%
Channel difference at 1kHz	< 2dB
Channel crosstalk at 1kHz	> 60dB
De-emphasis	0 or 15/50 µS (Switched by subcode on the disc)

*** Unless otherwise stated will refer to Tuner 92 specifications**


10:36
CD


C
B
H
D
F
E
A
G
SPEAKERS

PCS 63 260

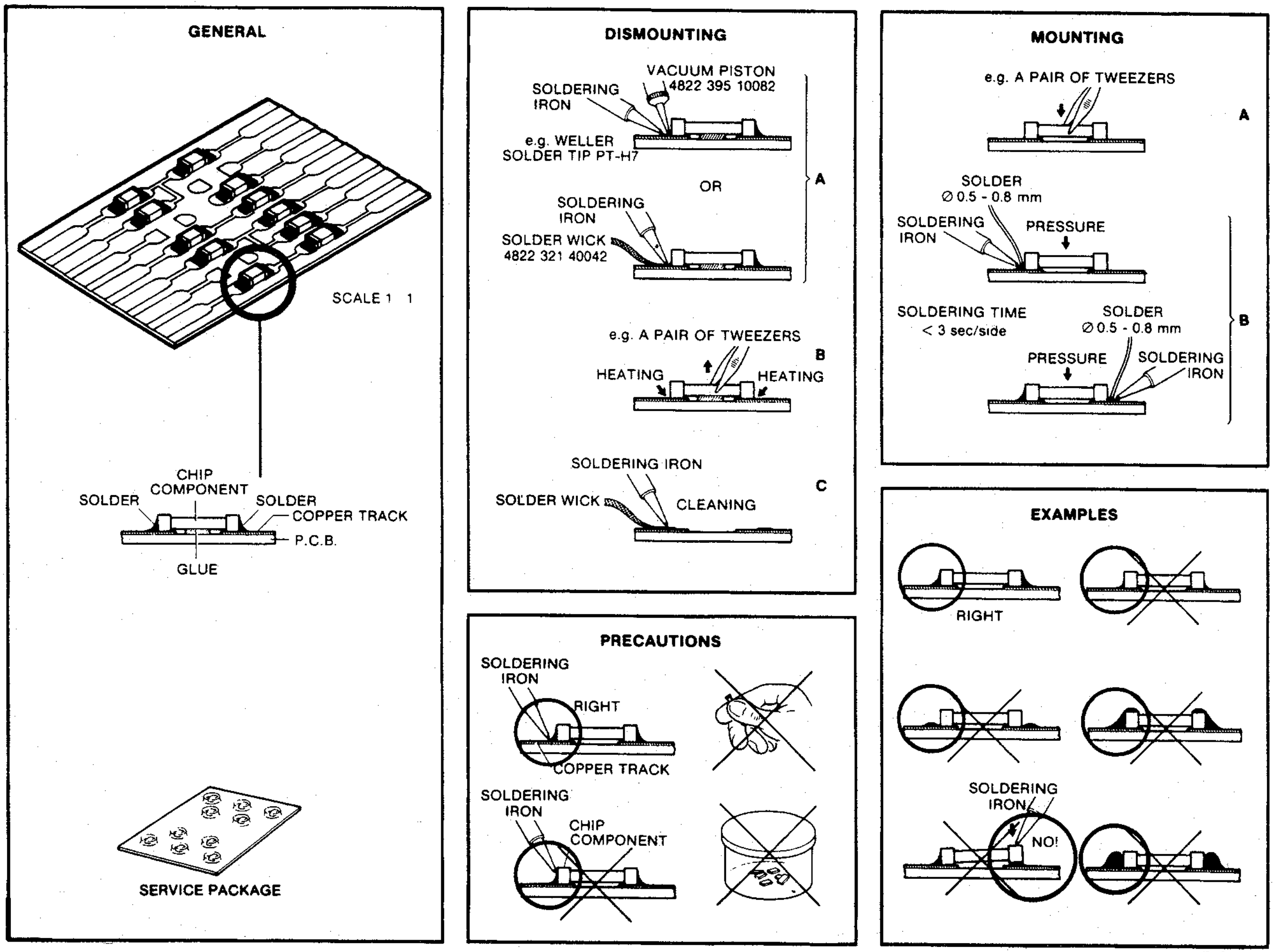
CONNECTIONS AND CONTROLS

1	IR sensor		6405
2	FTD display		1401
3	Tuner controls	Preset up/down	1419, 1420
		Tuning up/down	1426, 1427
		Band	1418
		Mono	1421
		Autoprogram	1429
		Program	1428
4	GE Display		1402
5	Volume control		3534
6	Headphone socket		1510
7	Spatial sound		1432
8	Dynamic bass boost		1433
9	Record/playback deck	Record/pause	1900
		Fast rewind	1908
		Fast forward	1906
		Play reverse	1924
		Stop	1902
		Play forward	1926
		Eject	
10	Auto reverse		1904
11	Dolby B NR		1901
12	CD controls	Repeat	1914
		Scan	1913
		Shuffle	1912
		Program/review	1915
		Clear	1916
		Edit	1917
		Stop	1922
		Play/pause	1921
		Tray open/close	1918
		Previous	1919
		Next	1920

13	Mic mixer (Karaoke)	Mic socket *)	1502
		Mixer control *)	3507
14	Dubbing speed	High	1905
		Normal	1910
15	Play deck	Play reverse	1923
		Stop	1903
		Play forward	1925
		Fast rewind	1909
		Fast forward	1907
16	CD synchro		1911
17	Digital sound control	Jazz	1410
		Pop	1411
		Classic	1412
		Flat	1413
18	Power on/off (Standby)		1431
19	Function controls	CD	1414
		Tuner	1415
		Tape	1416
		Aux/TV	1417
20	Graphic equalizer		3507 - 3511
21	Clock set		1422
22	Timer/News control	Timer	1425
		News	1424
		Timer/News set	1423
A	Speaker output socket		1260
B	FM Aerial socket		1110
C	AM Aerial socket		1111
D	Aux/TV input socket		1554
E	Voltage selector *)		1262
F	System reset switch		1558
G	AC supply socket		1261
H	Phono input socket		1554

*) For /21/34/39 only

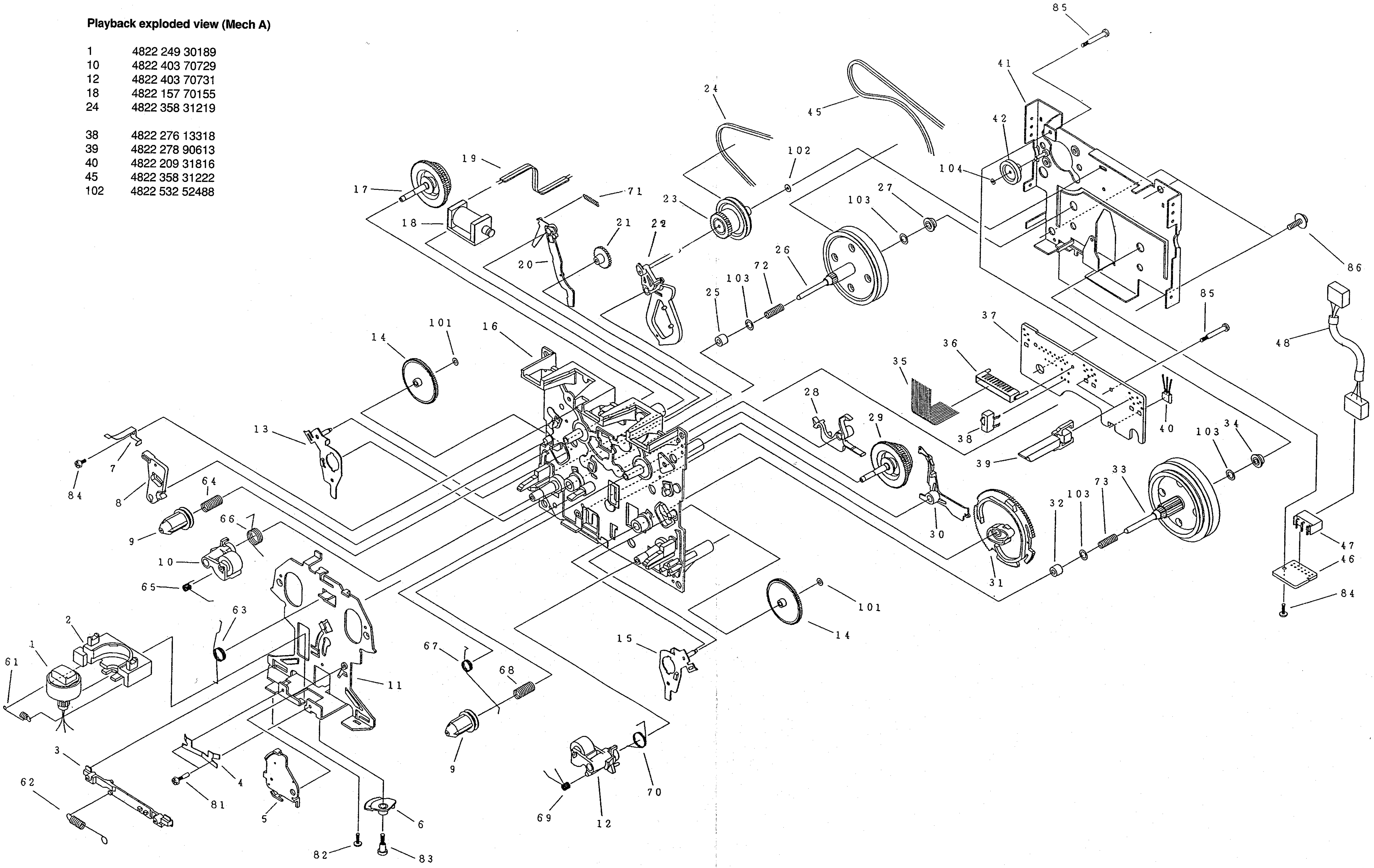
HANDLING CHIP COMPONENTS


GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
SOLDERING IRON
SOLDER WICK 4822 321 40042
A
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
SOLDER WICK
CLEANING
C
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER ⌀ 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME < 3 sec/side
SOLDER ⌀ 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
RIGHT
SOLDERING IRON
NO!

27 012C12

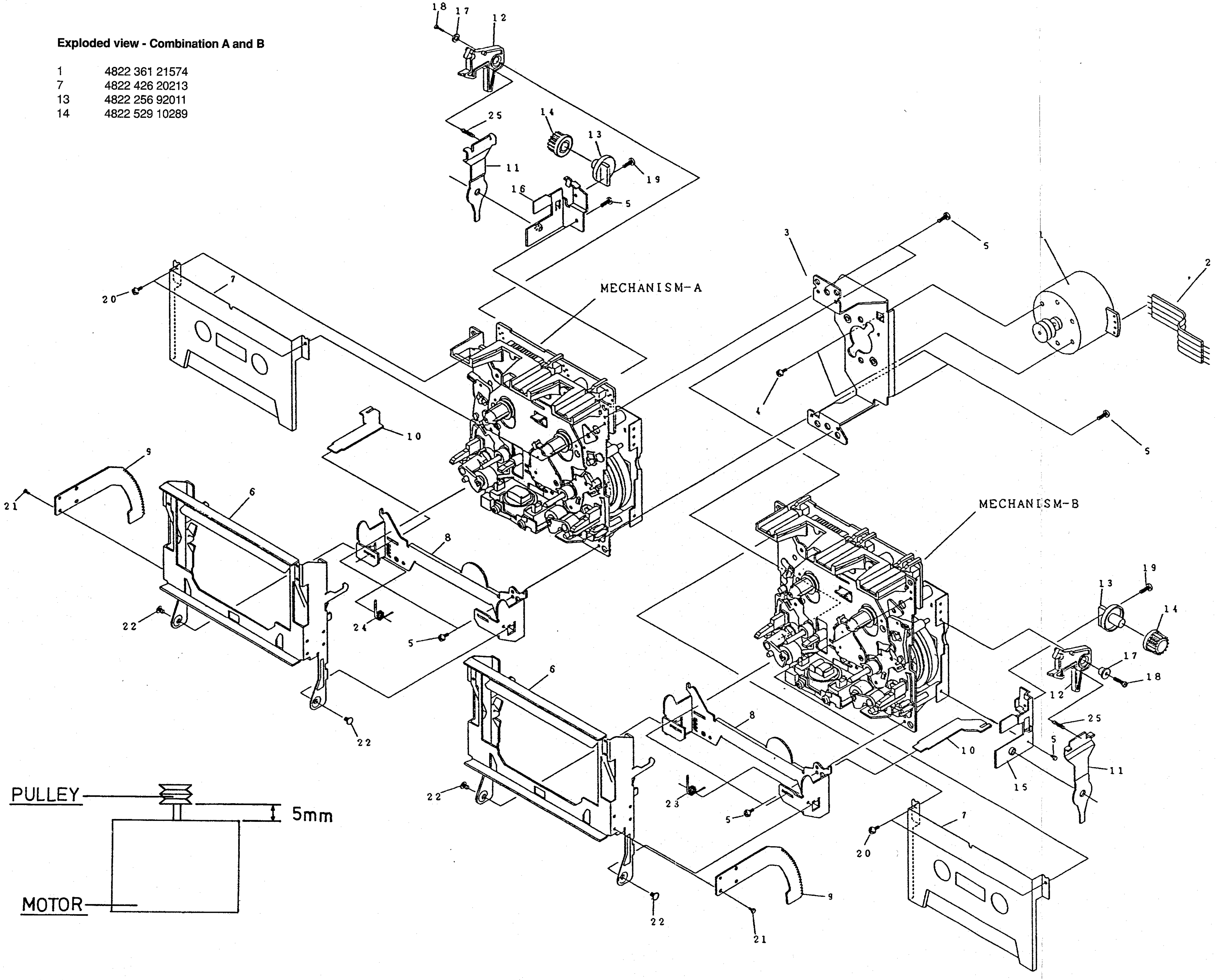
Playback exploded view (Mech A)

1	4822 249 30189
10	4822 403 70729
12	4822 403 70731
18	4822 157 70155
24	4822 358 31219
38	4822 276 13318
39	4822 278 90613
40	4822 209 31816
45	4822 358 31222
102	4822 532 52488


85
41
24
45
42
102
104
19
17
71
23
27
103
18
21
22
20
26
86
72
25
85
37
48
14
101
16
36
35
28
40
13
38
34
29
103
7
84
39
33
64
8
32
103
73
30
9
66
47
46
10
31
65
101
84
63
2
14
15
1
61
67
11
68
3
70
4
62
81
9
5
6
69
12
82
83

Exploded view - Combination A and B

1	4822 361 21574
7	4822 426 20213
13	4822 256 92011
14	4822 529 10289


MECHANISM-A
MECHANISM-B
PULLEY
5mm
MOTOR
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

3325	4822 116 83933	15k 1% 0.1W
3326	4822 116 83933	15k 1% 0.1W
3327	4822 116 83933	15k 1% 0.1W
3328	4822 116 83933	15k 1% 0.1W
3360	4822 051 10102	1k 2% 0.25W
3361	4822 051 10102	1k 2% 0.25W
3501	4822 052 10108 ⚠	1Ω 5% 0.33W
3502	4822 052 10108 ⚠	1Ω 5% 0.33W
3550	4822 051 20561	560Ω 5% 0.1W
3551	4822 051 10102	1k 2% 0.25W
3552	4822 051 20223	22k 5% 0.1W
3553	4822 051 10102	1k 2% 0.25W
3610	4822 051 20123	12k 5% 0.1W
3611	4822 116 52303	8k2 5% 0.5W
3612	4822 051 20123	12k 5% 0.1W
3613	4822 051 20123	12k 5% 0.1W
3614	4822 051 20123	12k 5% 0.1W
3615	4822 052 10108 ⚠	1Ω 5% 0.33W
3616	4822 052 10108 ⚠	1Ω 5% 0.33W
3617	4822 052 10229 ⚠	22Ω 5% 0.33W
3662	4822 051 20103	10k 5% 0.1W
3663	4822 051 20103	10k 5% 0.1W
3664	4822 051 20103	10k 5% 0.1W
3665	4822 051 20561	560Ω 5% 0.1W
3700	4822 051 20224	220k 5% 0.1W
3701	4822 052 10338 ⚠	3Ω3 5% 0.33W
3706	4822 051 20103	10k 5% 0.1W
3707	4822 051 20103	10k 5% 0.1W
3708	4822 051 20103	10k 5% 0.1W
3710	4822 051 20103	10k 5% 0.1W
3711	4822 051 20332	3k3 5% 0.1W
3713	4822 051 20103	10k 5% 0.1W
3714	4822 051 20103	10k 5% 0.1W
3715	4822 051 20332	3k3 5% 0.1W
3716	4822 051 20103	10k 5% 0.1W
3717	4822 051 20103	10k 5% 0.1W
3718	4822 051 20103	10k 5% 0.1W
3719	4822 051 20103	10k 5% 0.1W
3720	4822 051 20103	10k 5% 0.1W
3721	4822 051 20103	10k 5% 0.1W
3722	4822 051 10102	1k 2% 0.25W
3723	4822 051 10102	1k 2% 0.25W
3724	4822 051 10102	1k 2% 0.25W
4000	4822 051 10008	0Ω 5% 0.25W
4001	4822 051 10008	0Ω 5% 0.25W
4002	4822 051 10008	0Ω 5% 0.25W
4003	4822 051 10008	0Ω 5% 0.25W
4004	4822 051 10008	0Ω 5% 0.25W
4104	4822 051 10008	0Ω 5% 0.25W
4105	4822 051 10008	0Ω 5% 0.25W
4106	4822 051 10008	0Ω 5% 0.25W
4107	4822 051 10008	0Ω 5% 0.25W
4108	4822 051 10008	0Ω 5% 0.25W
4109	4822 051 10008	0Ω 5% 0.25W
4200	4822 051 10008	0Ω 5% 0.25W
4302	4822 051 10008	0Ω 5% 0.25W
4600	4822 051 10008	0Ω 5% 0.25W
4700	4822 051 10008	0Ω 5% 0.25W
4701	4822 051 10008	0Ω 5% 0.25W

6103	4822 130 30621	1N4148
6550	4822 130 31981	BZX79-C3V9
6660	4822 130 34173	BZX79-C5V6

7000	4822 209 31064	TDA1301T/N1
7040	4822 130 60887	BF840
7041	5322 130 41982	BC848B
7042	5322 130 41983	BC858B
7043	5322 130 41982	BC848B
7044	5322 130 41982	BC848B
7060	4822 209 72587	TCA0372DP2
7080	4822 209 72587	TCA0372DP2
7101	4822 209 63925	FCB61C6-70T
7102	4822 209 30388	SAA7341GP
7140	5322 130 42012	BC858
7141	4822 130 61207	BC848
7300	4822 209 83274	NJM4560D
7301	4822 209 83274	NJM4560D
7360	4822 130 42804	BC817-25
7361	4822 130 42804	BC817-25
7362	5322 130 42012	BC858
7500	4822 209 80891 ⚠	MC78M05CT
7550	5322 130 42012	BC858
7660	4822 209 72587	TCA0372DP2
7700	4822 900 10318	MC68HC05C8/SERVO-S17

Note : Only the mentioned parts are normal service parts.

MISCELLANEOUS AND ACCESSORIES

MISCELLANEOUS

1021	4822 691 20765	Tape deck CWA409-RR
	4822 445 10356	Loudspeaker
	4822 445 10357	Loudspeaker -/37

ACCESSORIES

4822 218 10466	Remote Control
4822 263 21071	Adaptor Fem/Fem - /25
4822 736 21705	Instruction For Use
4822 736 21706	Instruction For Use -/37

Note : Only the mentioned parts are normal service parts.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les piéces de rechange identiques à celles spécifiées.

NL

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

S Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

DK Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

CD BOARD

MISCELLANEOUS

1002	4822 242 73557		Cer Res 8.467MHz
1020	4822 071 51601	⚠	Fuse 160mA
1021	4822 071 51601	⚠	Fuse 160mA
1570	4822 242 81151		X'tal Res 16.9344kHz
1700	4822 242 72527		Cer Res 8.467MHz

⊣⊢

2000	5322 122 31865	1.5nF 10% 63V
2001	5322 116 80853	560pF 5% 63V
2003	4822 122 32575	220pF 10% 500V
2004	4822 122 32575	220pF 10% 500V
2005	4822 122 32575	220pF 10% 500V
2006	4822 122 32575	220pF 10% 500V
2007	4822 122 32575	220pF 10% 500V
2008	4822 122 32575	220pF 10% 500V
2009	4822 122 33496	100nF 10% 63V
2010	5322 124 21643	22µF 20% 40V
2011	4822 122 33496	100nF 10% 63V
2012	4822 124 40272	33µF 20% 16V
2015	5322 124 21643	22µF 20% 40V
2016	4822 122 33496	100nF 10% 63V
2017	5322 124 21643	22µF 20% 40V
2018	4822 122 33496	100nF 10% 63V
2019	4822 122 33809	22nF 20% 50V
2040	5322 122 32654	22nF 10% 63V
2041	4822 126 10326	180pF 5% 63V
2042	5322 124 21643	22µF 20% 40V
2043	5322 122 31863	330pF 5% 50V
2044	4822 126 10326	180pF 5% 63V
2045	5322 122 32452	47pF 5% 63V
2046	5322 122 32452	47pF 5% 63V
2047	5322 122 32531	100pF 5% 50V
2048	5322 122 32965	18pF 5% 50V
2049	4822 126 10326	180pF 5% 63V
2050	4822 126 10326	180pF 5% 63V
2051	5322 122 31863	330pF 5% 50V
2052	5322 124 21643	22µF 20% 40V
2060	4822 122 33496	100nF 10% 63V
2061	4822 122 33496	100nF 10% 63V
2062	4822 124 40272	33µF 20% 16V
2063	4822 124 40272	33µF 20% 16V
2064	4822 122 33342	33nF 10% 63V
2065	4822 122 33496	100nF 10% 63V
2066	4822 122 33175	2.2nF 20% 50V
2070	4822 122 33176	2.7nF 20% 50V
2071	4822 122 33496	100nF 10% 63V
2072	4822 126 10326	180pF 5% 63V
2080	4822 122 33496	100nF 10% 63V
2081	5322 124 21643	22µF 20% 40V
2082	4822 122 33496	100nF 10% 63V
2083	5322 124 21643	22µF 20% 40V
2084	4822 126 10326	180pF 5% 63V
2085	4822 122 33496	100nF 10% 63V
2086	5322 126 10465	3.9nF 10% 63V
2101	5322 122 32452	47pF 5% 63V
2102	4822 122 33175	2.2nF 20% 50V
2103	4822 124 40849	330µF 20% 16V
2104	4822 122 33496	100nF 10% 63V
2105	5322 121 42661	330nF 5% 63V
2106	4822 122 33496	100nF 10% 63V
2107	4822 124 41584	100µF 20% 10V
2108	4822 122 33809	22nF 20% 50V
2109	4822 124 40242	1µF 20% 63V
2110	5322 122 32659	33pF 5% 50V
2111	5322 121 42386	100nF 5% 63V
2112	4822 122 33496	100nF 10% 63V
2114	5322 122 32452	47pF 5% 63V
2115	5322 122 32452	47pF 5% 63V
2116	4822 124 40242	1µF 20% 63V
2117	5322 126 10223	4.7nF 10% 63V
2118	5322 126 10223	4.7nF 10% 63V
2119	4822 124 41584	100µF 20% 10V
2120	4822 122 33496	100nF 10% 63V
2121	4822 122 33496	100nF 10% 63V
2122	4822 124 40849	330µF 20% 16V
2123	4822 122 33496	100nF 10% 63V
2125	5322 126 10223	4.7nF 10% 63V
2140	4822 122 33496	100nF 10% 63V
2141	4822 122 32542	47nF 10% 63V
2300	5322 122 31863	330pF 5% 50V
2301	4822 124 40272	33µF 20% 16V
2302	4822 124 40246	4.7µF 20% 63V
2303	4822 122 33216	270pF 5% 50V
2304	4822 124 40272	33µF 20% 16V
2305	4822 124 40246	4.7µF 20% 63V
2306	4822 122 33496	100nF 10% 63V
2309	4822 122 33216	270pF 5% 50V
2310	5322 122 31863	330pF 5% 50V
2311	4822 124 40246	4.7µF 20% 63V
2312	4822 122 33219	1.8nF 10% 50V
2313	4822 122 33219	1.8nF 10% 50V
2500	4822 124 80148	2200µF 20% 16V
2501	4822 122 33496	100nF 10% 63V
2502	4822 124 41853	1000µF 16V
2503	4822 122 33496	100nF 10% 63V
2504	4822 122 33496	100nF 10% 63V
2550	4822 122 33175	2.2nF 20% 50V
2610	4822 122 33496	100nF 10% 63V
2611	4822 122 33496	100nF 10% 63V
2612	4822 122 33496	100nF 10% 63V
2702	4822 124 40272	33µF 20% 16V
2703	4822 122 33809	22nF 20% 50V
2704	4822 122 33175	2.2nF 20% 50V

-▭-

3000	4822 050 21003		10k 1% 0.6W
3001	4822 050 21003		10k 1% 0.6W
3002	4822 050 21003		10k 1% 0.6W
3003	4822 050 21003		10k 1% 0.6W
3004	4822 050 21003		10k 1% 0.6W
3005	4822 050 21003		10k 1% 0.6W
3006	4822 051 20103		10k 5% 0.1W
3007	4822 052 10338	⚠	3Ω3 5% 0.33W
3008	4822 052 10338	⚠	3Ω3 5% 0.33W
3009	4822 051 20105		1M 5% 0.1W
3010	4822 051 20103		10k 5% 0.1W
3011	4822 051 20103		10k 5% 0.1W
3012	4822 051 10102		1k 2% 0.25W
3013	4822 051 10102		1k 2% 0.25W
3014	4822 052 10478	⚠	4Ω7 5% 0.33W
3015	4822 050 21002		1k 1% 0.6W
3016	4822 050 21002		1k 1% 0.6W
3017	4822 051 10102		1k 2% 0.25W
3040	4822 051 10101		100Ω 2% 0.25W
3041	4822 051 20393		39k 5% 0.1W
3042	4822 051 20334		330k 5% 0.1W
3043	4822 051 20303		30k 5% 0.1W
3044	4822 051 10102		1k 2% 0.25W
3045	4822 051 20101		100Ω 5% 0.1W
3046	4822 051 10102		1k 2% 0.25W
3047	4822 051 20434		430k 5% 0.1W
3048	4822 051 20101		100Ω 5% 0.1W
3049	4822 050 24301		430Ω 1% 0.6W
3050	4822 051 20434		430k 5% 0.1W
3051	4822 051 20182		1k8 5% 0.1W
3052	4822 051 20182		1k8 5% 0.1W
3053	4822 051 20392		3k9 5% 0.1W
3054	4822 051 20101		100Ω 5% 0.1W
3055	4822 051 20124		120k 5% 0.1W
3056	4822 050 21204		120k 1% 0.6W
3057	4822 050 25603		56k 1% 0.6W
3058	4822 050 21002		1k 1% 0.6W
3060	4822 117 10036		7k5 1% 0.1W
3061	4822 051 20682		6k8 5% 0.1W
3062	4822 116 52244		15k 5% 0.5W
3063	4822 051 20103		10k 5% 0.1W
3064	4822 050 21503		15k 1% 0.125W
3065	4822 052 10229	⚠	22Ω 5% 0.33W
3066	4822 052 10108	⚠	1Ω 5% 0.33W
3067	4822 052 10108	⚠	1Ω 5% 0.33W
3070	4822 051 20153		15k 5% 0.1W
3071	4822 051 20103		10k 5% 0.1W
3072	4822 050 26802		6k8 1% 0.6W
3073	4822 052 10229	⚠	22Ω 5% 0.33W
3074	4822 116 52244		15k 5% 0.5W
3075	4822 050 21003		10k 1% 0.6W
3080	4822 051 20682		6k8 5% 0.1W
3081	4822 050 24702		4k7 1% 0.6W
3082	4822 051 20153		15k 5% 0.1W
3083	4822 052 10108		1Ω 5% 0.33W
3084	4822 052 10108		1Ω 5% 0.33W
3085	4822 050 21003		10k 1% 0.6W
3086	4822 052 10229	⚠	22Ω 5% 0.33W
3087	4822 116 52244		15k 5% 0.5W
3100	4822 050 22202		2k2 1% 0.6W
3101	4822 051 20223		22k 5% 0.1W
3102	4822 051 20223		22k 5% 0.1W
3103	4822 052 10338	⚠	3Ω3 5% 0.33W
3105	4822 052 10338	⚠	3Ω3 5% 0.33W
3106	4822 051 10102		1k 2% 0.25W
3109	4822 051 20222		2k2 5% 0.1W
3110	4822 051 20105		1M 5% 0.1W
3111	4822 052 10229	⚠	22Ω 5% 0.33W
3112	4822 050 22205		2M2 1% 0.6W
3117	4822 051 20182		1k8 5% 0.1W
3118	4822 051 20182		1k8 5% 0.1W
3119	4822 051 10561		560Ω 2% 0.25W
3140	4822 116 52234		100k 5% 0.5W
3141	4822 051 20104		100k 5% 0.1W
3142	4822 050 24703		47k 1% 0.6W
3143	4822 052 10229	⚠	22Ω 5% 0.33W
3144	4822 051 20223		22k 5% 0.1W
3146	4822 050 21003		10k 1% 0.6W
3147	4822 051 20392		3k9 5% 0.1W
3148	4822 051 20473		47k 5% 0.1W
3300	4822 051 20223		22k 5% 0.1W
3301	4822 051 20153		15k 5% 0.1W
3302	4822 051 20332		3k3 5% 0.1W
3303	4822 050 21803		18k 1% 0.6W
3304	4822 051 20123		12k 5% 0.1W
3305	4822 052 10229	⚠	22Ω 5% 0.33W
3306	4822 052 10229	⚠	22Ω 5% 0.33W
3307	4822 051 20332		3k3 5% 0.1W
3308	4822 051 20123		12k 5% 0.1W
3309	4822 051 20223		22k 5% 0.1W
3310	4822 051 20153		15k 5% 0.1W
3311	4822 051 20183		18k 5% 0.1W
3312	4822 050 22203		22k 1% 0.6W
3313	4822 051 20223		22k 5% 0.1W
3314	4822 050 21002		1k 1% 0.6W
3315	4822 050 21002		1k 1% 0.6W
3320	4822 116 83933		15k 1% 0.1W
3321	4822 116 83933		15k 1% 0.1W
3322	4822 116 83933		15k 1% 0.1W
3323	4822 116 83933		15k 1% 0.1W

2534	4822 122 33195	100pF 10% 50V
2535	4822 122 33848	47pF 5% 50V
2536	4822 122 33848	47pF 5% 50V
2537	4822 124 41973	100µF 20% 16V
2538	4822 126 11585	22nF +80-20% 25V
2539	4822 124 41973	100µF 20% 16V
2541	4822 124 80192	4.7µF 20% 63V
2542	4822 124 80192	4.7µF 20% 63V

3401	4822 052 10109 ⚠	10Ω 5% 0.33W
3402	4822 050 11002	1k 1% 0.4W
3403	4822 116 52175	100Ω 5% 0.5W
3404	4822 116 52228	680Ω 5% 0.5W
3405	4822 052 10108 ⚠	1Ω 5% 0.33W
3406	4822 052 10108 ⚠	1Ω 5% 0.33W
3407	4822 050 15608	5Ω6 1% 0.4W
3408	4822 050 15608	5Ω6 1% 0.4W
3410	4822 116 90836	10Kx5(resnet)0.125W
3411	4822 116 90839	10Kx4(resnet)0.125W
3412	4822 051 20103	10k 5% 0.1W
3413	4822 116 52219	330Ω 5% 0.5W
3414	4822 051 20103	10k 5% 0.1W
3415	4822 051 20103	10k 5% 0.1W
3416	4822 116 90835	10Kx7(resnet)0.125W
3417	4822 116 52219	330Ω 5% 0.5W
3418	4822 116 52265	270k 5% 0.5W
3419	4822 116 52265	270k 5% 0.5W
3420	4822 051 20103	10k 5% 0.1W
3421	4822 051 20103	10k 5% 0.1W
3422	4822 051 20104	100k 5% 0.1W
3423	4822 116 52233	10k 5% 0.5W
3424	4822 051 20104	100k 5% 0.1W
3430	4822 116 52233	10k 5% 0.5W
3434	4822 116 52233	10k 5% 0.5W
3450	4822 051 20102	1k 5% 0.1W
3451	4822 051 20102	1k 5% 0.1W
3452	4822 051 20102	1k 5% 0.1W
3453	4822 051 20102	1k 5% 0.1W
3454	4822 051 20102	1k 5% 0.1W
3455	4822 051 20223	22k 5% 0.1W
3456	4822 051 20102	1k 5% 0.1W
3457	4822 051 20102	1k 5% 0.1W
3458	4822 051 20102	1k 5% 0.1W
3460	4822 050 11002	1k 1% 0.4W
3461	4822 116 52234	100k 5% 0.5W
3462	4822 050 11002	1k 1% 0.4W
3463	4822 116 52234	100k 5% 0.5W
3466	4822 116 90843	100Kx5(resnet)0.125W
3471	4822 051 20102	1k 5% 0.1W
3472	4822 051 20222	2k2 5% 0.1W

3473	4822 051 20152	1k5 5% 0.1W
3474	4822 051 20682	6k8 5% 0.1W
3475	4822 051 20103	10k 5% 0.1W
3480	4822 051 20103	10k 5% 0.1W
3481	4822 051 20103	10k 5% 0.1W
3487	4822 051 20103	10k 5% 0.1W
3488	4822 051 20109	10Ω 5% 0.1W
3489	4822 051 20472	4k7 5% 0.1W
3490	4822 116 52233	10k 5% 0.5W
3493	4822 116 52233	10k 5% 0.5W
3495	4822 116 52233	10k 5% 0.5W
3496	4822 116 52233	10k 5% 0.5W
3497	4822 116 52233	10k 5% 0.5W
3498	4822 050 11002	1k 1% 0.4W
3499	4822 050 15608	5Ω6 1% 0.4W
3501	4822 116 52256	2k2 5% 0.5W
3502	4822 116 52256	2k2 5% 0.5W
3503	4822 116 52263	2k7 5% 0.5W
3504	4822 116 52263	2k7 5% 0.5W
3505	4822 116 52283	4k7 5% 0.5W
3506	4822 116 52283	4k7 5% 0.5W
3507	4822 105 11107	50Kx2 20%lin 0.025W
3508	4822 105 11107	50Kx2 20%lin 0.025W
3509	4822 105 11107	50Kx2 20%lin 0.025W
3510	4822 105 11107	50Kx2 20%lin 0.025W
3511	4822 105 11107	50Kx2 20%lin 0.025W
3513	4822 116 52244	15k 5% 0.5W
3514	4822 116 52244	15k 5% 0.5W
3515	4822 116 52251	18k 5% 0.5W
3516	4822 051 20183	18k 5% 0.1W
3517	4822 051 20183	18k 5% 0.1W
3518	4822 051 20183	18k 5% 0.1W
3519	4822 051 20223	22k 5% 0.1W
3520	4822 051 20223	22k 5% 0.1W
3521	4822 116 52244	15k 5% 0.5W
3522	4822 051 20153	15k 5% 0.1W
3523	4822 051 20183	18k 5% 0.1W
3524	4822 051 20183	18k 5% 0.1W
3525	4822 116 52251	18k 5% 0.5W
3526	4822 051 20183	18k 5% 0.1W
3527	4822 051 20223	22k 5% 0.1W
3528	4822 051 20223	22k 5% 0.1W
3529	4822 116 52304	82k 5% 0.5W
3530	4822 051 20823	82k 5% 0.1W
3531	4822 116 52243	1k5 5% 0.5W
3532	4822 116 52243	1k5 5% 0.5W
3533	4822 116 52243	1k5 5% 0.5W
3534	4822 051 20152	1k5 5% 0.1W
3535	4822 116 52292	560k 5% 0.5W
3536	4822 116 52292	560k 5% 0.5W
3537	4822 116 52284	47k 5% 0.5W
3538	4822 051 20223	22k 5% 0.1W

3541	4822 051 20223	22k 5% 0.1W
3542	4822 051 20223	22k 5% 0.1W
3543	4822 116 52244	15k 5% 0.5W
3544	4822 116 52213	180Ω 5% 0.5W
4400	4822 051 10008	0Ω 5% 0.25W
4402	4822 051 10008	0Ω 5% 0.25W
4404	4822 051 10008	0Ω 5% 0.25W
4405	4822 051 10008	0Ω 5% 0.25W
4406	4822 051 10008	0Ω 5% 0.25W
4420	4822 051 10008	0Ω 5% 0.25W
4421	4822 051 10008	0Ω 5% 0.25W
4422	4822 051 10008	0Ω 5% 0.25W
4425	4822 051 10008	0Ω 5% 0.25W

5401	5322 242 73697	Resonator 8MHz
5402	4822 242 70938	X'tal 8MHz
5410	4822 157 62552	Coil 2.2µH 20%
5411	4822 157 62552	Coil 2.2µH 20%
5412	4822 157 53447	Bread Inductor
5413	4822 157 53447	Bread Inductor
5414	4822 157 53447	Bread Inductor
5416	4822 157 53447	Bread Inductor
5417	4822 157 53447	Bread Inductor
5511	4822 157 53447	Bread Inductor
5512	4822 157 53447	Bread Inductor
5513	4822 157 53447	Bread Inductor

6401	4822 130 34167	BZX79-C6V2
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6405	4822 214 52009	GP1U58XP
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 30621	1N4148
6411	4822 130 30621	1N4148
6412	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6470	5322 130 31504	BZX79-C3V3
6471	4822 130 30621	1N4148

7400	4822 209 31513	TMP87CM70F
7401	4822 209 31515	BA3830S

7402	4822 209 31508	ST24C01
7403	5322 209 10421	HEF4094BP
7450	5322 130 44779	BC338-40
7451	4822 130 60588	DTC114ES
7452	4822 130 44196	BC548C
7453	4822 130 60588	DTC114ES
7454	4822 130 44196	BC548C
7455	4822 130 44196	BC548C
7459	5322 130 60068	BC558C
7460	4822 130 44461	BC546B
7461	4822 130 44461	BC546B
7462	4822 130 44461	BC546B
7463	4822 130 44461	BC546B
7464	4822 130 44461	BC546B
7465	4822 130 44461	BC546B
7466	4822 130 44461	BC546B
7470	4822 130 42682	DTA144ES
7539	4822 209 83274	NJM4560D

Note : Only the mentioned parts are normal service parts.

-▶|-

6544	4822 130 34173	BZX79-B5V6
6545	4822 130 34173	BZX79-B5V6
6546	4822 130 30621	1N4148
6547	4822 130 30621	1N4148
6548	4822 130 34174	BZX79-C4V7
6549	4822 130 34233	BZX79-C5V1
6550	4822 130 82978	LTL-16KPE
6551	4822 130 30621	1N4148
6900	4822 130 30621	1N4148
6901	4822 130 30621	1N4148
6902	4822 130 30621	1N4148
6903	4822 130 30621	1N4148
6904	4822 130 30621	1N4148
6905	4822 130 30621	1N4148
6906	4822 130 30621	1N4148

⊗ ▭

7501 *	4822 209 83274	NJM4560D
7516	4822 209 61187	BA15218
7530	4822 130 44196	BC548C
7531	4822 130 44196	BC548C
7532	5322 130 44779	BC338-40
7533	5322 130 44779	BC338-40
7534	5322 130 44779	BC338-40
7535	5322 130 44779	BC338-40
7544	5322 130 44779	BC338-40
7545	5322 130 44779	BC338-40
7546	4822 130 41715	BC328-40
7547	4822 130 41715	BC328-40
7548	4822 130 40937	BC548B
7549	4822 130 40937	BC548B
7553	4822 130 41691	BC556B
7560	4822 130 44246	BC549C
7561	4822 130 44246	BC549C
7562	4822 130 44196	BC548C
7564	5322 209 14865	MC14066BCP
7565	5322 209 14865	MC14066BCP
7900	5322 209 12171	PC74HC4094T
7901	5322 209 12171	PC74HC4094T

* For -/21/34 only

Note : Only the mentioned parts are normal service parts.

FRONT BOARD

MISCELLANEOUS

1401	4822 130 91132	FTD Display
1402	4822 130 91135	FTD Display
1410	4822 276 12465	Tact Switch
1411	4822 276 12465	Tact Switch
1412	4822 276 12465	Tact Switch
1413	4822 276 12465	Tact Switch
1414	4822 276 12465	Tact Switch
1415	4822 276 12465	Tact Switch
1416	4822 276 12465	Tact Switch
1417	4822 276 12465	Tact Switch
1418	4822 276 12465	Tact Switch
1419	4822 276 12465	Tact Switch
1420	4822 276 12465	Tact Switch
1421	4822 276 12465	Tact Switch
1422	4822 276 12465	Tact Switch
1423	4822 276 12465	Tact Switch
1424	4822 276 12465	Tact Switch
1425	4822 276 12465	Tact Switch
1426	4822 276 12465	Tact Switch
1427	4822 276 12465	Tact Switch
1428	4822 276 12465	Tact Switch
1429	4822 276 12465	Tact Switch
1431	4822 276 12465	Tact Switch
1432	4822 276 13403	Tact Switch
1433	4822 276 13403	Tact Switch
1510	4822 267 31506	Headphone Socket

-||-

2401	5322 122 32654	22nF 10% 63V
2402	4822 124 23176	22µF 20% 16V
2403	4822 124 40184	1000µF 20% 10V
2404	4822 124 80211	22mF 20% 5.5V
2405	4822 121 51252	470nF 5% 63V
2406	4822 121 51252	470nF 5% 63V
2407	4822 121 51252	470nF 5% 63V
2408	5322 122 32658	22pF 5% 50V
2409	5322 122 32658	22pF 5% 50V
2411	4822 122 10577	3.3nF 10% 16V
2412	4822 124 23176	22µF 20% 16V
2414	4822 124 23179	10µF 20% 16V
2415	4822 122 33496	100nF 10% 63V
2416	4822 124 22403	10µF 20% 16V
2417	4822 126 11585	22nF +80-20% 25V
2450	5322 122 32531	100pF 5% 50V
2451	5322 122 32531	100pF 5% 50V
2452	5322 122 32531	100pF 5% 50V
2453	5322 122 32531	100pF 5% 50V
2454	5322 122 32531	100pF 5% 50V
2460	5322 122 32531	100pF 5% 50V
2461	4822 122 33195	100pF 10% 50V

-||-

2462	4822 122 33195	100pF 10% 50V
2463	4822 122 33195	100pF 10% 50V
2464	4822 122 33195	100pF 10% 50V
2465	4822 122 33195	100pF 10% 50V
2466	4822 122 33195	100pF 10% 50V
2467	4822 122 33195	100pF 10% 50V
2468	4822 122 33195	100pF 10% 50V
2469	4822 122 33195	100pF 10% 50V
2470	4822 122 33195	100pF 10% 50V
2471	4822 124 41584	100µF 20% 10V
2472	4822 122 33797	47nF 20% 50V
2473	4822 122 33797	47nF 20% 50V
2475	5322 122 34123	1nF 10% 50V
2476	4822 124 41584	100µF 20% 10V
2477	4822 122 33127	2.2nF 10% 63V
2479	5322 122 32654	22nF 10% 63V
2480	4822 122 33169	680pF 10% 50V
2485	5322 122 32965	18pF 5% 50V
2486	5322 122 32965	18pF 5% 50V
2487	5322 122 32965	18pF 5% 50V
2488	5322 122 32965	18pF 5% 50V
2489	5322 122 32531	100pF 5% 50V
2490	5322 122 32965	18pF 5% 50V
2491	5322 122 32965	18pF 5% 50V
2492	5322 122 32452	47pF 5% 63V
2493	5322 122 32452	47pF 5% 63V
2494	5322 122 34123	1nF 10% 50V
2495	5322 122 34123	1nF 10% 50V
2496	5322 122 34123	1nF 10% 50V
2497	5322 122 34123	1nF 10% 50V
2498	5322 122 34123	1nF 10% 50V
2513	4822 122 33496	100nF 10% 63V
2514	4822 122 33496	100nF 10% 63V
2515	4822 122 33342	33nF 10% 63V
2516	5322 122 32654	22nF 10% 63V
2517	4822 122 10575	8.2nF 20% 16V
2518	4822 126 10525	8.2nF 10% 63V
2519	4822 122 10576	1.8nF 10% 16V
2520	4822 122 32153	1.8nF 10% 63V
2521	4822 122 33496	100nF 10% 63V
2522	4822 122 33496	100nF 10% 63V
2523	5322 122 32654	22nF 10% 63V
2524	5322 122 32654	22nF 10% 63V
2525	4822 122 10575	8.2nF 20% 16V
2526	4822 126 10525	8.2nF 10% 63V
2527	4822 122 10576	1.8nF 10% 16V
2528	4822 122 32153	1.8nF 10% 63V
2529	4822 122 33169	680pF 10% 50V
2530	4822 122 32535	680pF 10% 63V
2531	4822 126 10178	820pF 10% 50V
2532	4822 122 33806	820pF 10% 63V
2533	4822 122 33195	100pF 10% 50V

COMBI BOARD

MISCELLANEOUS

1502 *	4822 267 31522	Mic. Socket
1900	4822 276 12465	Tact Switch
1901	4822 276 12465	Tact Switch
1902	4822 276 12465	Tact Switch
1903	4822 276 12465	Tact Switch
1904	4822 276 12465	Tact Switch
1905	4822 276 12465	Tact Switch
1906	4822 276 12465	Tact Switch
1907	4822 276 12465	Tact Switch
1908	4822 276 12465	Tact Switch
1909	4822 276 12465	Tact Switch
1910	4822 276 12465	Tact Switch
1911	4822 276 12465	Tact Switch
1912	4822 276 12465	Tact Switch
1913	4822 276 12465	Tact Switch
1914	4822 276 12465	Tact Switch
1915	4822 276 12465	Tact Switch
1916	4822 276 12465	Tact Switch
1917	4822 276 12465	Tact Switch
1918	4822 276 12465	Tact Switch
1919	4822 276 12465	Tact Switch
1920	4822 276 12465	Tact Switch
1921	4822 276 12465	Tact Switch
1922	4822 276 12465	Tact Switch
1923	4822 276 13403	Tact Switch
1924	4822 276 13403	Tact Switch
1925	4822 276 13403	Tact Switch
1926	4822 276 13403	Tact Switch
1929	4822 267 51162	Conn. 6P
1930	4822 267 51161	Conn. 5P

⊣⊢

2500 *	4822 124 23178	47µF 20% 16V
2501 *	4822 126 11585	22nF +80-20% 25V
2502 *	4822 124 41973	100µF 20% 16V
2503 *	4822 124 41969	1µF 20% 50V
2504 *	4822 124 40248	10µF 20% 63V
2505 *	4822 124 40248	10µF 20% 63V
2506 *	4822 124 40248	10µF 20% 63V
2507 *	4822 124 41398	1µF 20% 63V
2508 *	4822 122 33195	100pF 10% 50V
2509 *	4822 122 33195	100pF 10% 50V
2510 *	4822 122 10573	56pF 5% 50V
2511 *	4822 122 10573	56pF 5% 50V
2512 *	4822 122 10573	56pF 5% 50V
2513 *	4822 122 10573	56pF 5% 50V
2514 *	4822 122 33169	680pF 10% 50V
2515 *	4822 122 33169	680pF 10% 50V
2516 *	4822 122 10573	56pF 5% 50V
2517 *	4822 122 33196	330pF 10% 50V
2518	4822 124 41398	1µF 20% 63V

⊣⊢

2519	4822 124 41398	1µF 20% 63V
2520	4822 124 40248	10µF 20% 63V
2521	4822 124 40248	10µF 20% 63V
2522	4822 122 33519	470pF 10% 50V
2523	4822 122 33519	470pF 10% 50V
2524	4822 124 41973	100µF 20% 16V
2525	4822 124 41973	100µF 20% 16V
2526	4822 124 40433	47µF 20% 25V
2527	4822 126 11585	22nF +80-20% 25V
2528	4822 122 33169	680pF 10% 50V
2529	4822 122 33169	680pF 10% 50V
2530	4822 122 10166	22nF 30% 16V
2531	4822 122 10166	22nF 30% 16V
2532	4822 122 33069	33pF 5% 50V
2533	4822 122 10574	1.2nF 10% 16V
2534	4822 122 33195	100pF 10% 50V
2535	4822 122 33195	100pF 10% 50V
2536	4822 124 23179	10µF 20% 16V
2537	4822 124 41973	100µF 20% 16V
2538	4822 124 40433	47µF 20% 25V
2539	4822 124 41973	100µF 20% 16V
2544	4822 124 40196	220µF 20% 16V
2553	4822 124 40248	10µF 20% 63V
2554 *	4822 124 40248	10µF 20% 63V
2555 *	4822 124 40248	10µF 20% 63V
2559	4822 124 41973	100µF 20% 16V
2560	4822 121 43144	22nF 10% 50V
2561	4822 121 43144	22nF 10% 50V
2562	4822 121 51387	10nF 20% 16V
2563	4822 121 51387	10nF 20% 16V
2564	4822 126 11714	4.7nF 20%
2565	4822 126 11714	4.7nF 20%
2566	4822 122 10575	8.2nF 20% 16V
2567	4822 122 10575	8.2nF 20% 16V
2568	4822 122 33195	100pF 10% 50V
2569	4822 122 33195	100pF 10% 50V
2570	4822 122 10574	1.2nF 10% 16V
2571	4822 122 10574	1.2nF 10% 16V
2572	4822 124 40196	220µF 20% 16V
2573	5322 121 42498	680nF 5% 63V
2574	5322 121 42498	680nF 5% 63V
2575	4822 124 40248	10µF 20% 63V
2576	4822 124 40248	10µF 20% 63V
2900	4822 124 23179	10µF 20% 16V
2902	4822 122 10574	1.2nF 10% 16V
2904	4822 122 10574	1.2nF 10% 16V

⊣▭⊢

3500 *	4822 116 52195	47Ω 5% 0.5W
3503 *	4822 116 52238	12k 5% 0.5W
3504 *	4822 116 52234	100k 5% 0.5W

⊣▭⊢

3505 *	4822 116 52303	8k2 5% 0.5W
3506 *	4822 116 52224	470Ω 5% 0.5W
3507 *	4822 101 21204	Potm. 20KA
3508 *	4822 116 52256	2k2 5% 0.5W
3509 *	4822 116 52233	10k 5% 0.5W
3510 *	4822 116 52238	12k 5% 0.5W
3511 *	4822 116 52224	470Ω 5% 0.5W
3512 *	4822 116 52234	100k 5% 0.5W
3513 *	4822 116 52195	47Ω 5% 0.5W
3514	4822 116 52296	6k8 5% 0.5W
3515	4822 116 52296	6k8 5% 0.5W
3516	4822 116 52251	18k 5% 0.5W
3517	4822 116 52251	18k 5% 0.5W
3518	4822 116 52249	1k8 5% 0.5W
3519	4822 116 52249	1k8 5% 0.5W
3520	4822 116 52251	18k 5% 0.5W
3521	4822 116 52251	18k 5% 0.5W
3522	4822 116 81437	5Ω6 5% 0.5W
3523	4822 116 81437	5Ω6 5% 0.5W
3524	4822 052 10478 ⚠	4Ω7 5% 0.33W
3526	4822 116 52256	2k2 5% 0.5W
3527	4822 116 52256	2k2 5% 0.5W
3528	4822 116 52277	39k 5% 0.5W
3529	4822 116 52284	47k 5% 0.5W
3530	4822 116 52283	4k7 5% 0.5W
3531	4822 116 52283	4k7 5% 0.5W
3532	4822 116 52303	8k2 5% 0.5W
3533	4822 116 52303	8k2 5% 0.5W
3534	4822 101 90226	Potm 50kB x 2 w/motor
3535	4822 116 52233	10k 5% 0.5W
3536	4822 050 11002	1k 1% 0.4W
3537	4822 050 11002	1k 1% 0.4W
3538	4822 116 52222	390Ω 5% 0.5W
3539	4822 116 52222	390Ω 5% 0.5W
3540	4822 116 52235	1M 5% 0.5W
3541	4822 116 52235	1M 5% 0.5W
3542	4822 116 52222	390Ω 5% 0.5W
3543	4822 116 52222	390Ω 5% 0.5W
3544	4822 050 11002	1k 1% 0.4W
3545	4822 050 11002	1k 1% 0.4W
3546	4822 050 11002	1k 1% 0.4W
3547	4822 050 11002	1k 1% 0.4W
3548 *	4822 116 52234	100k 5% 0.5W
3549	4822 116 52215	220Ω 5% 0.5W
3550	4822 116 52215	220Ω 5% 0.5W
3551	4822 116 52215	220Ω 5% 0.5W
3552	4822 116 52215	220Ω 5% 0.5W
3553	4822 116 52257	22k 5% 0.5W
3554	4822 116 52257	22k 5% 0.5W
3555	4822 116 52257	22k 5% 0.5W
3556	4822 116 52269	3k3 5% 0.5W
3559	4822 116 52256	2k2 5% 0.5W

⊣▭⊢

3560	4822 116 52263	2k7 5% 0.5W
3561	4822 116 52263	2k7 5% 0.5W
3562	4822 050 11002	1k 1% 0.4W
3563	4822 050 11002	1k 1% 0.4W
3564	4822 116 52265	270k 5% 0.5W
3565	4822 116 52265	270k 5% 0.5W
3566	4822 116 52285	470k 5% 0.5W
3567	4822 116 52285	470k 5% 0.5W
3568	4822 116 52285	470k 5% 0.5W
3569	4822 116 52285	470k 5% 0.5W
3570	4822 116 52197	56Ω 5% 0.5W
3571	4822 116 52197	56Ω 5% 0.5W
3572	4822 116 52285	470k 5% 0.5W
3573	4822 116 52285	470k 5% 0.5W
3574	4822 116 52238	12k 5% 0.5W
3575	4822 116 52238	12k 5% 0.5W
3576	4822 050 11002	1k 1% 0.4W
3577	4822 050 11002	1k 1% 0.4W
3578	4822 116 52284	47k 5% 0.5W
3579	4822 052 10478 ⚠	4Ω7 5% 0.33W
3580	4822 116 52219	330Ω 5% 0.5W
3581	4822 116 52217	270Ω 5% 0.5W
3582	4822 116 52234	100k 5% 0.5W
3583	4822 050 11002	1k 1% 0.4W
3584	4822 050 11002	1k 1% 0.4W
3585	4822 116 52224	470Ω 5% 0.5W
3586	4822 116 52222	390Ω 5% 0.5W
3587	4822 116 52222	390Ω 5% 0.5W
3588	4822 116 52283	4k7 5% 0.5W
3589	4822 051 10333	33k 2% 0.25W
3591	4822 116 52269	3k3 5% 0.5W
3592	4822 116 52215	220Ω 5% 0.5W
3593	4822 116 52234	100k 5% 0.5W
3594	4822 116 52234	100k 5% 0.5W
3595	4822 116 52239	120k 5% 0.5W
3596	4822 116 52239	120k 5% 0.5W
3597	4822 116 52285	470k 5% 0.5W
3598	4822 116 52285	470k 5% 0.5W
3900	4822 116 52219	330Ω 5% 0.5W
3901	4822 116 52219	330Ω 5% 0.5W
3902	4822 116 52219	330Ω 5% 0.5W
3903	4822 116 52219	330Ω 5% 0.5W
3904	4822 116 52233	10k 5% 0.5W

⊣▯⊢ ∿∿∿

5520	4822 157 53447	Bread Inductor
5521	4822 157 53447	Bread Inductor

* For -/21/34 only

TUNER 92 BOARD - FOR /22 ONLY

MISCELLANEOUS

1101	4822 210 10492	Tuner Unit FE415-G11
1110	4822 267 10283	FM Antenna Socket
1111	4822 267 31505	AM Antenna Socket

⊣⊢

2101	5322 122 34099	470pF 10% 63V
2102	5322 122 32268	470pF 10% 50V
2103	4822 124 40433	47µF 20% 25V
2104	4822 121 42408	220nF 5% 63V
2105	5322 122 32965	18pF 5% 50V
2107	4822 122 31385	22pF 50V
2108	5322 122 32654	22nF 10% 63V
2109	5322 122 32654	22nF 10% 63V
2110	5322 122 32654	22nF 10% 63V
2112	5322 122 32654	22nF 10% 63V
2113	5322 122 32661	56pF 5% 50V
2114	5322 124 41431	22µF 20% 35V
2115	4822 124 40239	0.47µF 20% 63V
2116	5322 121 42386	100nF 5% 63V
2117	4822 121 41935	12nF 5% 250V
2118	4822 121 41935	12nF 5% 250V
2119	4822 124 40244	2.2µF 20% 63V
2120	4822 124 40244	2.2µF 20% 63V
2121	4822 124 40196	220µF 20% 16V
2123	4822 124 40246	4.7µF 20% 63V
2124	4822 124 40246	4.7µF 20% 63V
2125	4822 122 33177	10nF 20% 50V
2126	4822 122 31782	15000pF 10% 50V
2129	4822 124 40242	1µF 20% 63V
2131	4822 124 40435	10µF 20% 50V
2140	4822 125 60102	Trimmer 30pF
2141	4822 125 60101	Trimmer 10pF
2142	4822 125 60102	Trimmer 30pF
2143	5322 122 32269	6.8pF 5% 50V
2144	4822 121 42408	220nF 5% 63V
2145	4822 121 51263	510pF 1% 400V
2146	4822 121 70082	430pF 1% 400V
2147	5322 122 32654	22nF 10% 63V
2148	5322 122 32452	47pF 5% 63V
2149	4822 122 33177	10nF 20% 50V
2150	5322 122 32654	22nF 10% 63V
2151	5322 122 34099	470pF 10% 63V
2152	4822 124 40242	1µF 20% 63V
2153	5322 122 34099	470pF 10% 63V
2154	5322 122 32481	15pF 5% 50V
2155	5322 122 32965	18pF 5% 50V
2156	4822 124 40433	47µF 20% 25V
2158	5322 126 10223	4.7nF 10% 63V
2159	5322 126 10223	4.7nF 10% 63V
2160	4822 124 41631	1.5µF 50V

⊣⊢

2161	4822 122 32927	220nF +80-20% 50V
2162	4822 122 10166	22nF 30% 16V
2165	4822 124 40433	47µF 20% 25V
2196	5322 122 32448	10pF 5% 50V
2210	4822 124 41643	100µF 20% 16V
2215	5322 122 32268	470pF 10% 50V
2216	5322 122 32268	470pF 10% 50V
2219	4822 122 32927	220nF +80-20% 50V
2221	5322 122 32268	470pF 10% 50V
2224	4822 122 32575	220pF 10% 500V
2225	4822 122 32575	220pF 10% 500V

-▭-

3100	4822 050 21501 △	150Ω 1% 0.6W
3101	4822 050 21501 △	150Ω 1% 0.6W
3102	4822 051 20224	220k 5% 0.1W
3104	4822 051 20154	150k 5% 0.1W
3105	4822 051 20562	5k6 5% 0.1W
3106	4822 051 20829	82Ω 5% 0.1W
3107	4822 051 20104	100k 5% 0.1W
3108	4822 050 24701	470Ω 1% 0.6W
3113	4822 053 10221	220Ω 5% 1W
3114	4822 051 20472	4k7 5% 0.1W
3115	4822 051 20391	390Ω 5% 0.1W
3116	4822 051 20478	4Ω7 5% 0.1W
3117	4822 051 20331	330Ω 5% 0.1W
3118	4822 116 52215	220Ω 5% 0.5W
3120	4822 052 10339 △	33Ω 5% 0.33W
3121	4822 051 20272	2k7 5% 0.1W
3122	4822 051 20562	5k6 5% 0.1W
3123	4822 051 20223	22k 5% 0.1W
3124	4822 051 20103	10k 5% 0.1W
3125	4822 100 11213	Trimmer 22k 30%
3126	4822 051 20123	12k 5% 0.1W
3127	4822 051 20562	5k6 5% 0.1W
3128	4822 051 20562	5k6 5% 0.1W
3129	4822 051 20103	10k 5% 0.1W
3131	4822 100 11319	Trimmer 4k7
3132	4822 051 20183	18k 5% 0.1W
3133	4822 051 20008	0Ω 5% 0.1W
3134	4822 050 15602	5k6 1% 0.4W
3135	4822 051 10008	0Ω 5% 0.25W
3140	4822 051 20821	820Ω 5% 0.1W
3141	4822 051 20182	1k8 5% 0.1W
3142	4822 051 20472	4k7 5% 0.1W
3143	4822 051 20821	820Ω 5% 0.1W
3144	4822 051 20331	330Ω 5% 0.1W
3145	4822 051 20271	270Ω 5% 0.1W
3147	4822 050 15602	5k6 1% 0.4W
3148	4822 051 20104	100k 5% 0.1W
3149	4822 051 20472	4k7 5% 0.1W

-▭-

3150	4822 050 25601	560Ω 1% 0.6W
3151	4822 050 24702	4k7 1% 0.6W
3152	4822 051 20103	10k 5% 0.1W
3155	4822 050 22201 △	220Ω 1% 0.6W
3156	4822 051 20153	15k 5% 0.1W
3157	4822 051 20472	4k7 5% 0.1W
3158	4822 050 24702	4k7 1% 0.6W
3159	4822 051 20104	100k 5% 0.1W
3160	4822 051 20104	100k 5% 0.1W
3162	4822 050 23901 △	390Ω 1% 0.6W
3163	4822 051 20103	10k 5% 0.1W
3164	4822 051 20473	47k 5% 0.1W
3165	4822 050 21002	1k 1% 0.6W
3166	4822 050 21002	1k 1% 0.6W
3167	4822 050 21002	1k 1% 0.6W
3170	4822 051 20223	22k 5% 0.1W
3171	4822 051 20103	10k 5% 0.1W
3172	4822 051 20472	4k7 5% 0.1W
3173	4822 051 20223	22k 5% 0.1W
3183	4822 050 21003	10k 1% 0.6W
3184	4822 051 20332	3k3 5% 0.1W
3185	4822 051 20103	10k 5% 0.1W
3186	4822 050 21003	10k 1% 0.6W
3187	4822 051 20103	10k 5% 0.1W
3190	4822 051 20479	47Ω 5% 0.1W
3194	4822 051 20472	4k7 5% 0.1W
3196	4822 051 20008	0Ω 5% 0.1W
3197	4822 051 20008	0Ω 5% 0.1W
3198	4822 051 20103	10k 5% 0.1W
3200	4822 051 20008	0Ω 5% 0.1W
3202	4822 051 20008	0Ω 5% 0.1W
3223	4822 051 20474	470k 5% 0.1W
3225	4822 050 21002	1k 1% 0.6W
3230	4822 051 20223	22k 5% 0.1W
3231	4822 051 20223	22k 5% 0.1W
3233	4822 051 10102	1k 2% 0.25W
3236	4822 051 20008	0Ω 5% 0.1W
3240	4822 051 20182	1k8 5% 0.1W
3241	4822 051 20008	0Ω 5% 0.1W
3244	5322 116 44005	PTC 250Ω 25V

⊣▯⊢ ∿∿∿

5101	4822 157 53192	0.22µH 20%
5103	4822 242 81249	Ceram Filter 10.7MHz
5104	4822 157 63029	IFT AM
5105	4822 157 63904	Det Coil
5106	4822 157 63802	Birdy Filter
5107	4822 157 63799	MW Aerial Coil
5108	4822 157 63912	AM Osc
5109	4822 157 63801	LW Aerial Coil
5110	4822 242 71878	Ceram Filter 450kHz

⊣▯⊢ ∿∿∿

5111	4822 242 81248	Cer Res 19kHz
5112	4822 242 72976	X'tal 7.2MHz
5113	4822 242 81249	10.7MHz Ceramic Filter
5114	4822 152 20699	560µH Inductor

→|

6101	4822 130 34174	BZX79-C4V7
6102	4822 130 83075	HN1V02H
6109	4822 130 30621	1N4148

⊗ ▭

7101	4822 130 60163	2SC1047
7103	4822 209 31001	LA1851N
7104	5322 130 60068	BC558C
7105	4822 209 30178	LC7218
7106	5322 130 60068	BC558C
7107	5322 130 41982	BC848B
7108	4822 130 44196	BC548C
7109	4822 130 44196	BC548C
7110	5322 130 44779	BC338-40
7111	5322 130 41982	BC848B
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	5322 130 44779	BC338-40
7115	4822 130 41024	BF245B
7116	4822 130 60163	2SC1047
7119	5322 130 41983	BC858B
7120	4822 130 44196	BC548C
7150	5322 130 44779	BC338-40
7157	5322 130 44779	BC338-40

Note : Only the mentioned parts are normal service parts.

ECO4 TUNER - ALL VERSIONS EXCEPT /22

MISCELLANEOUS

1101	4822 265 20598	FM Aerial Socket -/37
1101	4822 267 10283	FM Aerial Socket
1103	4822 267 31505	AM Aerial Socket

⊣⊢

2100	4822 122 33195	100pF 10% 50V
2104	4822 122 33195	100pF 10% 50V
2107	4822 122 31746	1000pF 2% 63V
2112	4822 122 33496	100nF 10% 63V
2113	4822 125 60101	3P0-11pF N45 100V
2114 +	5322 122 32531	100pF 5% 50V
2115	4822 125 60101	3P0-11pF N45 100V
2120	5322 122 32268	470pF 10% 50V
2121	5322 122 32481	15pF 5% 50V
2122	4822 122 31746	1000pF 2% 63V
2123	4822 122 31746	1000pF 2% 63V
2124	4822 121 51387	10nF 20% 16V
2125 +	5322 122 31946	27pF 10% 50V
2126 +	4822 122 33496	100nF 10% 63V
2129 +	4822 121 43705	390pF 1% 160V
2134	4822 122 33197	1nF 10% 50V
2135	4822 121 70245	560pF 1% 160V
2136	5322 122 31946	27pF 10% 50V
2138	5322 122 32658	22pF 5% 50V
2139 +	4822 122 33175	2.2nF 20% 50V
2141	4822 124 40244	2.2µF 20% 63V
2142	4822 124 40242	1µF 20% 63V
2143	4822 122 33325	470nF 16V
2144	4822 122 33325	470nF 16V
2147	4822 122 33177	10nF 20% 50V
2150	4822 124 40435	10µF 20% 50V
2151	4822 124 40435	10µF 20% 50V
2152	4822 122 33496	100nF 10% 63V
2154	4822 122 33175	2.2nF 20% 50V
2155	4822 122 33175	2.2nF 20% 50V
2156	5322 126 10181	100nF 25V
2157	5322 126 10181	100nF 25V
2158	4822 122 31746	1000pF 2% 63V -/37
2158	4822 122 31775	680pF 2% 63V
2159	4822 122 31775	680pF 2% 63V
2159	4822 122 31746	1000pF 2% 63V -/37
2160	4822 124 40242	1µF 20% 63V
2161	4822 124 40242	1µF 20% 63V
2162	4822 124 40242	1µF 20% 63V
2168	4822 122 33481	1.8nF 5%
2169	5322 122 31863	330pF 5% 50V
2170	5322 126 10223	4.7nF 10% 63V
2171	5322 126 10223	4.7nF 10% 63V
2172	4822 124 41631	1.5µF 50V
2173	4822 124 40433	47µF 20% 25V

⊣⊢

2174	5322 116 80853	560pF 5%
2175	5322 122 32531	100pF 5%
2178	4822 122 33197	1nF 10% 50V
2179	4822 122 33195	100pF 10% 50V
2180	5322 122 31946	27pF 10% 50V
2181	4822 122 32139	12pF 2% 63V
2183	4822 122 33496	100nF 10% 63V
2184	4822 124 41584	100µF 20% 10V
2185	4822 122 33496	100nF 10% 63V
2186	4822 122 31746	1000pF 2% 63V

▭

3106	4822 051 20104	100k 5% 0.1W
3107 +	4822 051 20222	2k2 5% 0.1W
3108	4822 051 20104	100k 5% 0.1W
3109 +	4822 051 20222	2k2 5% 0.1W
3111	4822 051 20153	15k 5% 0.1W
3112	4822 051 20273	27k 5% 0.1W
3119	4822 116 52224	470Ω 5% 0.5W
3120	4822 050 15602	5k6 1% 0.4W
3121	4822 051 20104	100k 5% 0.1W
3122	4822 051 20471	470Ω 5% 0.1W
3123	4822 051 20223	22k 5% 0.1W
3124 +	4822 050 22202	2k2 1% 0.6W
3125 +	4822 051 20472	4k7 5% 0.1W
3128	4822 051 20222	2k2 5% 0.1W
3129 +	4822 051 20472	4k7 5% 0.1W
3132	4822 050 24702	4k7 1% 0.6W
3141	4822 050 22201	220Ω 1% 0.6W
3142	4822 051 20222	2k2 5% 0.1W
3144	4822 051 20473	47k 5% 0.1W
3147	4822 051 20184	180k 5% 0.1W
3148	4822 100 11682	47k 30%LIN 0.2W
3149	4822 051 20823	82k 5% 0.1W
3151	4822 050 21502	1k5 1% 0.6W
3154	4822 051 20333	33k 5% 0.1W
3155	4822 051 20333	33k 5% 0.1W
3156	4822 050 21003	10k 1% 0.6W
3157	4822 051 20473	47k 5% 0.1W
3159	4822 051 20103	10k 5% 0.1W
3160	4822 051 20823	82k 5% 0.1W
3161	4822 051 20823	82k 5% 0.1W
3162	4822 050 21002	1k 1% 0.6W
3163	4822 050 21002	1k 1% 0.6W
3164	4822 050 24702	4k7 1% 0.6W
3165	4822 050 24702	4k7 1% 0.6W
3166	4822 051 20101	100Ω 5% 0.1W
3167	4822 051 20008	0Ω 5% 0.1W
3170	4822 050 24702	4k7 1% 0.6W
3171	4822 051 20101	100Ω 5% 0.1W
3172	4822 051 20472	4k7 5% 0.1W

▭

3173	4822 116 52244	15k 5% 0.5W
3174	4822 050 21003	10k 1% 0.6W
3175	4822 051 20104	100k 5% 0.1W
3176	4822 051 20104	100k 5% 0.1W
3178	4822 051 20104	100k 5% 0.1W
3179	4822 051 20223	22k 5% 0.1W
3180	4822 051 20104	100k 5% 0.1W
3181	4822 116 52234	100k 5% 0.5W
3183	4822 051 20223	22k 5% 0.1W
3184	4822 051 20223	22k 5% 0.1W
3185	4822 051 20104	100k 5% 0.1W
3186	4822 051 20473	47k 5% 0.1W
3188	4822 051 10102	1k 2% 0.25W
3189	4822 050 21802	1k8 1% 0.6W
3190	4822 050 21802	1k8 1% 0.6W
3191	4822 050 21802	1k8 1% 0.6W
3192	4822 050 21802	1k8 1% 0.6W
3193	4822 116 52224	470Ω 5% 0.5W
3194	4822 050 24701	470Ω MRS25
3195	4822 050 24701	470Ω MRS25
3197	4822 050 24701	470Ω MRS25
3211	4822 051 10008	0Ω 5% 0.25W
3212	4822 051 10008	0Ω 5% 0.25W
3213	4822 051 10008	0Ω 5% 0.25W
3220	4822 051 20008	0Ω 5% 0.1W
3221	4822 051 20008	0Ω 5% 0.1W
3222	4822 051 20008	0Ω 5% 0.1W
3222	4822 051 20008	0Ω 5% 0.1W -/21/37
3224	4822 051 20008	0Ω 5% 0.1W
3226	4822 051 20008	0Ω 5% 0.1W
3228	4822 051 10008	0Ω 5% 0.25W
3229	4822 051 20008	0Ω 5% 0.1W -/21/37
3236	4822 051 10008	0Ω 5% 0.25W -/20/20S/37
3237	4822 051 10008	0Ω 5% 0.25W
3238 +	4822 051 20008	0Ω 5% 0.1W
3240	4822 051 10008	0Ω 5% 0.25W
3241	4822 051 20008	0Ω 5% 0.1W -/21/37
3242	4822 051 10008	0Ω 5% 0.25W
3243	4822 051 20008	0Ω 5% 0.1W -/21/37
3244	4822 051 20008	0Ω 5% 0.1W
3245 +	4822 051 20008	0Ω 5% 0.1W
3246	4822 051 10008	0Ω 5% 0.25W
3247	4822 051 10008	0Ω 5% 0.25W
3248	4822 051 20008	0Ω 5% 0.1W
3249	4822 051 20821	820Ω 5% 0.1W

5107	4822 157 63835	MW Aerial Coil -/21/37
5107 +	4822 157 63799	MW Aerial Coil
5108 +	4822 157 63801	LW Aerial Coil
5109	4822 156 30947	RF Coil 1.5T

5120	4822 156 30947	RF Coil 1.5T
5122 +	4822 157 60517	Coil 110µH 8%
5123	4822 157 60517	Coil 110µH 8%
5140	4822 158 60511	AM-IF Coil
5142	4822 157 70302	AM-IF Coil
5143	4822 242 70665	Ceram Filter 10.7MHz
5144	4822 242 70665	Ceram Filter 10.7MHz
5145	4822 242 81362	Cer Discriminator
5150	4822 157 50975	Coil 1MH 10%
5170	4822 242 72976	Cer. Res. 7.2MHz

6105	4822 130 83075	HN1V02H
6109	4822 130 82833	1SV228
6121	4822 130 30621	1N4148 -/34/37
6122	4822 130 30621	1N4148 -/21/34
6123	4822 130 30621	1N4148 -/34/37
6124	4822 130 82833	1SV228
6140	4822 130 30621	1N4148
6154	4822 130 30621	1N4148
6155	4822 130 30621	1N4148
6174	4822 130 34233	BZX79-F5V1

7102 +	4822 130 42615	BC817-40
7104 +	5322 130 42136	BC848C
7105	4822 130 60093	2SA838B
7120	4822 130 60163	2SC1047
7121 +	5322 130 42136	BC848C
7123 +	5322 130 42136	BC848C
7128 +	5322 130 42136	BC848C
7140	4822 209 32011	TEA5712T/N1 (RF-IC)
7150	5322 209 14482	HEF4069UBT Inverter
7156	4822 130 41344	BC337-40
7157	4822 130 41344	BC337-40
7169	5322 130 41983	BC858B
7170	5322 130 42136	BC848C
7171	5322 130 42136	BC848C
7172	4822 209 30606	MM74HCU04M Inverter
7173	4822 209 31998	LC7218M Synthesizer
7174	5322 130 41983	BC858B
7178	5322 130 41983	BC858B

+ For -/20/20S/25/30/34 only

Note : Only the mentioned parts are normal service parts.

PCS 63 268

TAPECORE BOARD

3725	4822 116 52238	12k 5% 0.5W
3726	4822 116 52238	12k 5% 0.5W
3727	4822 116 52195	47Ω 5% 0.5W
3728	4822 116 52195	47Ω 5% 0.5W
3729	4822 116 52269	3k3 5% 0.5W
3730	4822 116 52269	3k3 5% 0.5W
3731	4822 116 52269	3k3 5% 0.5W
3732	4822 116 52269	3k3 5% 0.5W
3733	4822 116 52224	470Ω 5% 0.5W
3734	4822 116 52284	47k 5% 0.5W
3735	4822 050 11002	1k 1% 0.4W
3736	4822 116 52234	100k 5% 0.5W
3737	4822 116 52269	3k3 5% 0.5W
3738	4822 116 52269	3k3 5% 0.5W
3739	4822 116 52269	3k3 5% 0.5W
3740	4822 116 52269	3k3 5% 0.5W
3741	4822 116 52269	3k3 5% 0.5W
3742	4822 116 52269	3k3 5% 0.5W
3743	4822 116 52303	8k2 5% 0.5W
3744	4822 116 52303	8k2 5% 0.5W
3745	4822 116 52231	820Ω 5% 0.5W
3746	4822 116 52231	820Ω 5% 0.5W
3747	4822 116 52224	470Ω 5% 0.5W
3748	4822 116 52283	4k7 5% 0.5W
3749	4822 050 11002	1k 1% 0.4W
3750	4822 050 11002	1k 1% 0.4W
3751	4822 116 52233	10k 5% 0.5W
3752	4822 116 52257	22k 5% 0.5W
3753	4822 116 52283	4k7 5% 0.5W
3754	4822 116 52207	1k2 5% 0.5W
3755	4822 116 52233	10k 5% 0.5W
3756	4822 100 11771	20k 30%lin 0.1W
3757	4822 052 10478 △	4Ω7 5% 0.33W
3758	4822 116 52191	33Ω 5% 0.5W
3759	4822 116 52296	6k8 5% 0.5W
3760	4822 116 52182	15Ω 5% 0.5W
3761	4822 116 52176	10Ω 5% 0.5W
3762	4822 116 52176	10Ω 5% 0.5W
3763	5322 100 11539	100k 30%lin 0.1W
3764	5322 100 11539	100k 30%lin 0.1W
3765	4822 116 52283	4k7 5% 0.5W
3766	4822 116 52256	2k2 5% 0.5W
3768	4822 116 52233	10k 5% 0.5W
3769	4822 116 52224	470Ω 5% 0.5W
3770	4822 116 52219	330Ω 5% 0.5W
3771	4822 050 11002	1k 1% 0.4W
3772	4822 050 11002	1k 1% 0.4W
3773	4822 050 11002	1k 1% 0.4W
3774	4822 051 10333	33k 2% 0.25W
3775	4822 116 52238	12k 5% 0.5W
3777	4822 116 52175	100Ω 5% 0.5W

3778	4822 116 52175	100Ω 5% 0.5W
3779	4822 116 52251	18k 5% 0.5W
3780	4822 116 52251	18k 5% 0.5W
3782	4822 116 52269	3k3 5% 0.5W
3783	4822 116 52284	47k 5% 0.5W
3784	4822 116 52284	47k 5% 0.5W
3785	4822 116 52234	100k 5% 0.5W
3786	4822 116 52234	100k 5% 0.5W
3787	5322 100 11542	4k7 30%lin 0.1W
3791	4822 050 11002	1k 1% 0.4W
3794	4822 116 52283	4k7 5% 0.5W
3795	4822 116 52283	4k7 5% 0.5W
3796	5322 100 11542	4k7 30%lin 0.1W
3797	4822 116 52296	6k8 5% 0.5W
3798	4822 116 52238	12k 5% 0.5W
3799	4822 116 52303	8k2 5% 0.5W
3800	4822 052 10159 △	15Ω 5% 0.33W
3803	4822 116 52283	4k7 5% 0.5W
3804	4822 116 52215	220Ω 5% 0.5W
3805	4822 050 11002	1k 1% 0.4W

5635	4822 242 73768	Low Pass Filter
5636	4822 242 73768	Low Pass Filter
5643	4822 242 70831	Resonator 4MHz
5673	4822 156 20811	Coil 36µH 5%
5674	4822 156 20811	Coil 36µH 5%
5760	4822 156 20946	Osc Coil 100kHz

6670	4822 130 30621	1N4148
6671	5322 130 30684	1N4002
6672	5322 130 30684	1N4002
6673	4822 130 34173	BZX79-C5V6

7635	4822 209 30498	HA12134A
7636	4822 209 31518	MN15542LD
7637	5322 130 44779	BC338-40
7641	4822 130 44196	BC548C
7642	4822 130 44196	BC548C
7653	4822 130 60588	DTC114ES
7654	4822 130 60588	DTC114ES
7655	4822 130 41327	BC327-40
7682	4822 130 60588	DTC114ES
7683	4822 130 60588	DTC114ES
7684	4822 130 60588	DTC114ES

7685	4822 130 60588	DTC114ES
7689	4822 130 60588	DTC114ES
7690	4822 130 44196	BC548C
7691	4822 130 60588	DTC114ES
7692	4822 130 44196	BC548C
7693	4822 130 44196	BC548C
7694	4822 130 41327	BC327-40
7695	4822 130 44196	BC548C
7696	4822 130 41327	BC327-40
7697	4822 130 44196	BC548C
7698	4822 130 41327	BC327-40
7700	4822 209 70288	µPC1313HA
7701	4822 209 70288	µPC1313HA
7702	5322 209 14865	MC14066BCP
7703	5322 209 14865	MC14066BCP
7704	4822 209 61667	µPC1330HA
7750	4822 130 41344	BC337-40
7751	4822 130 42682	DTA144ES
7752	4822 130 44196	BC548C
7753	4822 130 60588	DTC114ES
7754	4822 130 44196	BC548C
7760	4822 130 41344	BC337-40
7763	4822 130 42682	DTA144ES
7764	4822 130 60588	DTC114ES
7765	4822 130 60588	DTC114ES
7768	4822 130 44196	BC548C
7770	4822 209 31505	CXA1298AP
7782	4822 130 60588	DTC114ES
7783	4822 130 60588	DTC114ES
7784	4822 130 60588	DTC114ES

Note : Only the mentioned parts are normal service parts.

TAPECORE BOARD

MISCELLANEOUS

2635	4822 124 41398	1µF 20% 63V
2636	4822 124 41398	1µF 20% 63V
2637	4822 122 33069	33pF 5% 50V
2638	4822 122 33069	33pF 5% 50V
2639	4822 124 41398	1µF 20% 63V
2640	4822 124 41398	1µF 20% 63V
2641	4822 126 10329	68pF 5%
2642	4822 126 10329	68pF 5%
2643	4822 126 12187	22pF 5% 50V
2644	4822 126 12187	22pF 5% 50V
2645	4822 122 10577	3.3nF 10% 16V
2646	4822 122 10577	3.3nF 10% 16V
2647	4822 124 40248	10µF 20% 63V
2648	4822 124 40248	10µF 20% 63V
2649	4822 124 41398	1µF 20% 63V
2650	4822 124 40196	220µF 20% 16V
2651	4822 122 33519	470pF 10% 50V
2652	5322 124 41431	22µF 20% 35V
2653	5322 124 41431	22µF 20% 35V
2654	4822 124 40248	10µF 20% 63V
2655	4822 124 41398	1µF 20% 63V
2656	4822 124 41398	1µF 20% 63V
2657	4822 124 40248	10µF 20% 63V
2658	4822 124 40248	10µF 20% 63V
2659	4822 124 40248	10µF 20% 63V
2660	4822 124 40248	10µF 20% 63V
2661	4822 121 51252	470nF 5% 63V
2662	4822 121 51252	470nF 5% 63V
2663	4822 121 42408	220nF 5% 63V
2664	4822 121 42408	220nF 5% 63V
2665	4822 122 10466	220pF 10% 50V
2666	4822 122 10466	220pF 10% 50V
2667	4822 122 10466	220pF 10% 50V
2668	4822 122 10466	220pF 10% 50V
2669	4822 122 33519	470pF 10% 50V
2670	4822 122 33519	470pF 10% 50V
2673	4822 122 10458	82pF 10% 50V
2674	4822 122 10458	82pF 10% 50V
2675	4822 122 33519	470pF 10% 50V
2676	4822 122 33519	470pF 10% 50V
2680	4822 124 41397	47µF 20% 25V
2683	4822 124 40248	10µF 20% 63V
2684	4822 124 40196	220µF 20% 16V
2685	5322 121 42498	680nF 5% 63V
2699	4822 122 33197	1nF 10% 50V
2700	4822 122 33197	1nF 10% 50V
2701	4822 126 10777	100pF 50V
2702	4822 126 10777	100pF 50V
2703	4822 124 41973	100µF 20% 16V
2704	4822 124 41973	100µF 20% 16V
2705	4822 121 41935	12nF 5% 250V
2706	4822 121 41935	12nF 5% 250V

2707	4822 126 11585	22nF +80-20% 25V
2708	4822 126 11585	22nF +80-20% 25V
2709	4822 124 41398	1µF 20% 63V
2710	4822 124 41398	1µF 20% 63V
2712	4822 122 33519	470pF 10% 50V
2713	4822 124 40196	220µF 20% 16V
2719	4822 126 10178	820pF 10% 50V
2720	4822 126 10178	820pF 10% 50V
2721	4822 126 10777	100pF 50V
2722	4822 126 10777	100pF 50V
2723	4822 124 41973	100µF 20% 16V
2724	4822 124 41973	100µF 20% 16V
2725	4822 121 41935	12nF 5% 250V
2726	4822 121 41935	12nF 5% 250V
2727	4822 126 11585	22nF +80-20% 25V
2728	4822 126 11585	22nF +80-20% 25V
2729	4822 124 41398	1µF 20% 63V
2730	4822 124 41398	1µF 20% 63V
2732	4822 122 33519	470pF 10% 50V
2733	4822 124 40196	220µF 20% 16V
2739	4822 126 10781	470pF 50V
2740	4822 122 33519	470pF 10% 50V
2741	4822 124 41973	100µF 20% 16V
2747	4822 124 41973	100µF 20% 16V
2752	4822 124 40433	47µF 20% 25V
2755	4822 124 41398	1µF 20% 63V
2757	4822 124 40433	47µF 20% 25V
2759	4822 126 11714	4.7nF 20%
2760	4822 121 51387	10nF 20% 16V
2762	4822 124 40239	0.47µF 20% 63V
2763	4822 122 33069	33pF 5% 50V
2764	4822 122 33069	33pF 5% 50V
2765	4822 121 41857	10nF 5% 250V
2768	4822 124 41973	100µF 20% 16V
2769	4822 122 33519	470pF 10% 50V
2770	4822 124 40196	220µF 20% 16V
2771	4822 126 11714	4.7nF 20%
2772	4822 126 11714	4.7nF 20%
2773	4822 126 11714	4.7nF 20%
2774	4822 124 80192	4.7µF 20% 63V
2775	4822 124 40433	47µF 20% 25V
2776	4822 124 41398	1µF 20% 63V
2777	4822 124 41398	1µF 20% 63V
2778	4822 124 41398	1µF 20% 63V
2779	4822 122 10459	560pF 10% 50V
2780	4822 122 10459	560pF 10% 50V
2781	4822 126 11585	22nF +80-20% 25V
2782	4822 126 11585	22nF +80-20% 25V
2783	4822 124 41398	1µF 20% 63V
2784	4822 124 41398	1µF 20% 63V
2785	4822 126 11595	470pF 10% 50V
2786	4822 126 11595	470pF 10% 50V

2789	4822 124 42244	4.7µF 20% 63V
2790	4822 124 42244	4.7µF 20% 63V
2800	4822 121 51387	10nF 20% 16V
2801	4822 121 51387	10nF 20% 16V
2814	4822 126 12148	2.7nF 10%
2815	4822 126 12148	2.7nF 10%
2816	4822 126 12148	2.7nF 10%
2837	4822 126 12148	2.7nF 10%
2838	4822 126 12148	2.7nF 10%
2839	4822 126 12148	2.7nF 10%
2840	4822 126 12148	2.7nF 10%
2841	4822 126 12148	2.7nF 10%
2842	4822 126 12148	2.7nF 10%
2882	4822 126 12148	2.7nF 10%

3635	4822 116 52234	100k 5% 0.5W
3636	4822 116 52234	100k 5% 0.5W
3637	4822 116 52285	470k 5% 0.5W
3638	4822 116 52285	470k 5% 0.5W
3639	4822 116 52284	47k 5% 0.5W
3640	4822 116 52284	47k 5% 0.5W
3641	4822 116 52243	1k5 5% 0.5W
3642	4822 116 52243	1k5 5% 0.5W
3643	4822 116 52269	3k3 5% 0.5W
3644	4822 116 52269	3k3 5% 0.5W
3645	4822 116 52289	5k6 5% 0.5W
3646	4822 116 52289	5k6 5% 0.5W
3647	4822 050 11002	1k 1% 0.4W
3648	4822 050 11002	1k 1% 0.4W
3649	4822 116 52251	18k 5% 0.5W
3650	4822 116 52224	470Ω 5% 0.5W
3651	4822 116 52257	22k 5% 0.5W
3652	4822 116 52257	22k 5% 0.5W
3653	4822 050 11002	1k 1% 0.4W
3654	4822 116 52233	10k 5% 0.5W
3655	4822 116 52233	10k 5% 0.5W
3656	4822 116 52233	10k 5% 0.5W
3657	4822 116 52233	10k 5% 0.5W
3658	4822 116 52233	10k 5% 0.5W
3659	4822 116 52257	22k 5% 0.5W
3660	4822 116 52257	22k 5% 0.5W
3661	4822 116 52244	15k 5% 0.5W
3662	4822 116 52244	15k 5% 0.5W
3663	4822 100 11771	20k 30%lin 0.1W
3664	4822 100 11771	20k 30%lin 0.1W
3665	4822 100 11771	20k 30%lin 0.1W
3666	4822 100 11771	20k 30%lin 0.1W
3667	4822 100 11771	20k 30%lin 0.1W
3668	4822 100 11771	20k 30%lin 0.1W
3669	4822 050 11002	1k 1% 0.4W

3670	4822 116 52233	10k 5% 0.5W
3671	4822 050 11002	1k 1% 0.4W
3672	4822 050 11002	1k 1% 0.4W
3673	4822 116 52257	22k 5% 0.5W
3674	4822 116 52257	22k 5% 0.5W
3677	4822 050 11002	1k 1% 0.4W
3678	4822 050 11002	1k 1% 0.4W
3679	4822 050 11002	1k 1% 0.4W
3680	4822 050 11002	1k 1% 0.4W
3681	4822 050 11002	1k 1% 0.4W
3682	4822 116 52283	4k7 5% 0.5W
3683	4822 116 52283	4k7 5% 0.5W
3684	4822 116 52283	4k7 5% 0.5W
3685	4822 116 52283	4k7 5% 0.5W
3687	4822 050 11002	1k 1% 0.4W
3688	4822 050 11002	1k 1% 0.4W
3689	4822 116 52283	4k7 5% 0.5W
3690	4822 116 52283	4k7 5% 0.5W
3691	4822 116 52233	10k 5% 0.5W
3692	4822 116 52233	10k 5% 0.5W
3693	4822 116 52304	82k 5% 0.5W
3694	4822 116 52304	82k 5% 0.5W
3695	4822 116 52251	18k 5% 0.5W
3696	4822 116 52251	18k 5% 0.5W
3697	4822 116 52224	470Ω 5% 0.5W
3698	4822 116 52224	470Ω 5% 0.5W
3699	4822 116 52224	470Ω 5% 0.5W
3700	4822 116 52224	470Ω 5% 0.5W
3701	4822 116 52231	820Ω 5% 0.5W
3702	4822 116 52231	820Ω 5% 0.5W
3703	4822 116 52265	270k 5% 0.5W
3704	4822 116 52265	270k 5% 0.5W
3705	4822 116 52238	12k 5% 0.5W
3706	4822 116 52238	12k 5% 0.5W
3707	4822 116 52195	47Ω 5% 0.5W
3708	4822 116 52195	47Ω 5% 0.5W
3709	4822 116 52269	3k3 5% 0.5W
3710	4822 116 52269	3k3 5% 0.5W
3711	4822 116 52269	3k3 5% 0.5W
3712	4822 116 52269	3k3 5% 0.5W
3713	4822 116 52224	470Ω 5% 0.5W
3714	4822 116 52269	3k3 5% 0.5W
3715	4822 116 52269	3k3 5% 0.5W
3716	4822 116 52269	3k3 5% 0.5W
3717	4822 116 52224	470Ω 5% 0.5W
3718	4822 116 52224	470Ω 5% 0.5W
3719	4822 116 52224	470Ω 5% 0.5W
3720	4822 116 52224	470Ω 5% 0.5W
3721	4822 116 52224	470Ω 5% 0.5W
3722	4822 116 52224	470Ω 5% 0.5W
3723	4822 116 52265	270k 5% 0.5W
3724	4822 116 52265	270k 5% 0.5W

SELECTOR BOARD

MISCELLANEOUS

1554	4822 266 30293	Cinch Socket 4P
1555	4822 267 60328	Conn. 21P
1557	4822 267 51158	Conn. 7P
1558	4822 276 13282	Key Switch

⊣⊢

2551	4822 124 40239	0.47µF 20% 63V
2552	4822 124 40239	0.47µF 20% 63V
2553	4822 122 33196	330pF 10% 50V
2554	4822 122 33196	330pF 10% 50V
2557	4822 124 40239	0.47µF 20% 63V
2558	4822 124 40239	0.47µF 20% 63V
2561	4822 124 40239	0.47µF 20% 63V
2562	4822 124 40239	0.47µF 20% 63V
2563	4822 124 40239	0.47µF 20% 63V
2564	4822 124 40239	0.47µF 20% 63V
2565	5322 124 41948	470nF 20% 50V
2566	5322 124 41948	470nF 20% 50V
2567	4822 126 10178	820pF 10% 50V
2568	4822 126 10178	820pF 10% 50V
2569	4822 121 51387	10nF 20% 16V
2570	4822 121 51387	10nF 20% 16V
2571	4822 126 12148	2.7nF 10%
2572	4822 126 12148	2.7nF 10%
2573	4822 124 42218	470µF 20% 10V
2574	4822 126 12145	47nF 10% 25V
2575	4822 124 41973	100µF 20% 16V
2577	4822 124 40248	10µF 20% 63V
2578	4822 124 40248	10µF 20% 63V
2581	4822 122 33195	100pF 10% 50V
2582	4822 122 33195	100pF 10% 50V
2583	4822 122 33169	680pF 10% 50V
2584	4822 122 33169	680pF 10% 50V
2585	4822 122 33197	1nF 10% 50V
2586	4822 122 33197	1nF 10% 50V
2587	4822 124 80192	4.7µF 20% 63V
2588	4822 124 80192	4.7µF 20% 63V
2589	4822 126 12145	47nF 10% 25V
2590	4822 124 23794	470µF 20% 16V
2591	4822 122 33195	100pF 10% 50V
2592	4822 122 33195	100pF 10% 50V
2593	4822 124 40248	10µF 20% 63V
2594	4822 124 40248	10µF 20% 63V
2595	4822 124 40248	10µF 20% 63V
2596	4822 124 40248	10µF 20% 63V
2597	4822 122 33195	100pF 10% 50V
2598	4822 122 33195	100pF 10% 50V
2599	4822 124 41973	100µF 20% 16V
2600	4822 126 12145	47nF 10% 25V
2601	4822 126 12147	22nF 10% 25V
2605	4822 122 33195	100pF 10% 50V
2606	4822 122 33195	100pF 10% 50V
2609	4822 124 40239	0.47µF 20% 63V
2610	4822 124 40239	0.47µF 20% 63V
2611	4822 124 40177	47µF 20% 10V
2612	4822 126 12339	2.2nF 10%
2615	4822 124 80192	4.7µF 20% 63V
2616	4822 124 41973	100µF 20% 16V
2617	4822 124 40248	10µF 20% 63V
2618	4822 122 10573	56pF 5% 50V
2619	4822 122 10573	56pF 5% 50V
2620	4822 122 10573	56pF 5% 50V
2621	4822 122 10573	56pF 5% 50V
2623	4822 122 33519	470pF 10% 50V
2624	4822 122 33519	470pF 10% 50V
2625	4822 122 33519	470pF 10% 50V
2626	4822 122 33519	470pF 10% 50V
2627	4822 122 33196	330pF 10% 50V
2628	4822 122 33196	330pF 10% 50V
2629	4822 122 33519	470pF 10% 50V
2630	4822 122 33519	470pF 10% 50V

▭

3551	4822 116 52234	100k 5% 0.5W
3552	4822 116 52234	100k 5% 0.5W
3553	4822 116 52284	47k 5% 0.5W
3554	4822 116 52284	47k 5% 0.5W
3555	4822 050 11002	1k 1% 0.4W
3556	4822 050 11002	1k 1% 0.4W
3557	4822 116 52233	10k 5% 0.5W
3558	4822 116 52233	10k 5% 0.5W
3559	4822 116 52297	68k 5% 0.5W
3560	4822 116 52297	68k 5% 0.5W
3561	4822 116 52233	10k 5% 0.5W
3562	4822 116 52233	10k 5% 0.5W
3563	4822 116 52245	150k 5% 0.5W
3564	4822 116 52245	150k 5% 0.5W
3565	4822 116 52244	15k 5% 0.5W
3566	4822 116 52244	15k 5% 0.5W
3567	4822 116 52297	68k 5% 0.5W
3568	4822 116 52297	68k 5% 0.5W
3569	4822 116 52303	8k2 5% 0.5W
3570	4822 116 52303	8k2 5% 0.5W
3571	4822 116 52175	100Ω 5% 0.5W
3572	4822 116 52175	100Ω 5% 0.5W
3573	4822 116 52226	560Ω 5% 0.5W
3574	4822 116 52226	560Ω 5% 0.5W
3575	4822 116 52226	560Ω 5% 0.5W
3576	4822 116 52226	560Ω 5% 0.5W
3577	4822 116 52272	330k 5% 0.5W
3578	4822 116 52272	330k 5% 0.5W
3579	4822 116 52264	27k 5% 0.5W
3580	4822 116 52264	27k 5% 0.5W
3581	4822 116 52233	10k 5% 0.5W
3582	4822 116 52233	10k 5% 0.5W
3583	4822 116 52284	47k 5% 0.5W
3584	4822 116 52244	15k 5% 0.5W
3585	4822 116 52284	47k 5% 0.5W
3586	4822 116 52284	47k 5% 0.5W
3587	4822 116 52284	47k 5% 0.5W
3588	4822 116 52284	47k 5% 0.5W
3589	4822 116 52284	47k 5% 0.5W
3590	4822 116 52284	47k 5% 0.5W
3591	4822 116 52284	47k 5% 0.5W
3592	4822 116 52284	47k 5% 0.5W
3595	4822 116 52224	470Ω 5% 0.5W
3596	4822 116 52224	470Ω 5% 0.5W
3597	4822 116 52244	15k 5% 0.5W
3598	4822 116 52244	15k 5% 0.5W
3601	4822 116 52256	2k2 5% 0.5W
3602	4822 116 52256	2k2 5% 0.5W
3603	4822 116 52256	2k2 5% 0.5W
3604	4822 116 52256	2k2 5% 0.5W
3605	4822 116 52251	18k 5% 0.5W
3606	4822 116 52251	18k 5% 0.5W
3607	4822 116 52284	47k 5% 0.5W
3608	4822 116 52284	47k 5% 0.5W
3609	4822 116 52238	12k 5% 0.5W
3610	4822 116 52238	12k 5% 0.5W
3611	4822 116 52233	10k 5% 0.5W
3612	4822 116 52233	10k 5% 0.5W
3613	4822 116 52233	10k 5% 0.5W
3614	4822 116 52233	10k 5% 0.5W
3615	4822 052 10339 ⚠	33Ω 5% 0.33W
3616	4822 050 11002	1k 1% 0.4W
3617	4822 116 52244	15k 5% 0.5W
3618	4822 116 52244	15k 5% 0.5W
3619	4822 116 52249	1k8 5% 0.5W
3620	4822 116 52249	1k8 5% 0.5W
3621	4822 116 52231	820Ω 5% 0.5W
3622	4822 116 52231	820Ω 5% 0.5W
3623	4822 116 52231	820Ω 5% 0.5W
3624	4822 116 52231	820Ω 5% 0.5W
3625	4822 116 52238	12k 5% 0.5W
3626	4822 116 52258	220k 5% 0.5W
3629	4822 116 52233	10k 5% 0.5W
3630	4822 050 11002	1k 1% 0.4W
3631	4822 116 52257	22k 5% 0.5W
3632	4822 116 52257	22k 5% 0.5W
3633	4822 116 52257	22k 5% 0.5W
3634	4822 116 52257	22k 5% 0.5W
3635	4822 116 52234	100k 5% 0.5W
3636	4822 116 52234	100k 5% 0.5W
3637	4822 052 10339 ⚠	33Ω 5% 0.33W
3638	4822 116 52226	560Ω 5% 0.5W
3639	4822 116 52277	39k 5% 0.5W
3640	4822 116 52277	39k 5% 0.5W
3641	4822 116 52249	1k8 5% 0.5W
3642	4822 116 52235	1M 5% 0.5W
3649	4822 116 52269	3k3 5% 0.5W
3650	4822 116 52269	3k3 5% 0.5W
3651	4822 116 52263	2k7 5% 0.5W
3652	4822 116 52263	2k7 5% 0.5W
3653	4822 116 52226	560Ω 5% 0.5W
3654	4822 050 11002	1k 1% 0.4W

⊣▯⊢ ∿∿∿

5551	4822 157 53447	Bread Inductor
5552	4822 157 62552	Coil 2.2µH 20%
5553	4822 157 62552	Coil 2.2µH 20%
5554	4822 157 62552	Coil 2.2µH 20%
5555	4822 157 62552	Coil 2.2µH 20%
5556	4822 157 62552	Coil 2.2µH 20%
5557	4822 157 62552	Coil 2.2µH 20%
5558	4822 157 62552	Coil 2.2µH 20%
5559	4822 157 62552	Coil 2.2µH 20%

▶|

6551	4822 130 30621	1N4148
6552	4822 130 30621	1N4148
6553	4822 130 30621	1N4148
6554	4822 130 30621	1N4148
6555	4822 130 30621	1N4148
6556	4822 130 30621	1N4148
6557	4822 130 30621	1N4148
6558	4822 130 30621	1N4148
6559	4822 130 30621	1N4148
6560	4822 130 30621	1N4148
6561	4822 130 30621	1N4148
6562	4822 130 30621	1N4148
6563	4822 130 30621	1N4148
6564	4822 130 30621	1N4148
6565	4822 130 30621	1N4148
6566	4822 130 30621	1N4148
6567	4822 130 30621	1N4148
6568	4822 130 30621	1N4148
6569	4822 130 34173	BZX79-C5V6
6570	4822 130 30621	1N4148
6571	4822 130 30621	1N4148

⊗ ▭

7551	4822 209 83274	NJM4560D
7552	5322 209 10421	HEF4094BP
7553	4822 130 44196	BC548C
7554	4822 130 44196	BC548C
7555	4822 209 83274	NJM4560D
7556	4822 130 44196	BC548C
7557	4822 209 83274	NJM4560D
7559	4822 130 41327	BC327-40
7561	4822 130 44196	BC548C

Note : Only the mentioned parts are normal service parts.

POWER BOARD

MISCELLANEOUS

1251	4822 252 11115		Circuit breaker 2.5A
1252	4822 252 11115		Circuit breaker 2.5A
1260	4822 267 31176		Speaker Socket
1261	4822 265 31016	⚠	Mains Socket -/37
1261	4822 265 31015	⚠	Mains Socket
1262	4822 272 10269	⚠	Voltage Selector -/21/34
1301	4822 252 51123	⚠	Fuse T6.3A 250V -/37
1301	4822 071 54002	⚠	Fuse T4A 250V
1302	4822 252 51123	⚠	Fuse T6.3A 250V -/37
1302	4822 071 54002	⚠	Fuse T4A 250V
1303	4822 253 30334	⚠	Fuse T1.25A 250V -/37
1303	4822 071 51002	⚠	Fuse T1A 250V
1304	4822 253 30334	⚠	Fuse T1.25A 250V -/37
1304	4822 071 51002	⚠	Fuse T1A 250V
1305	4822 253 30334	⚠	Fuse T1.25A 250V -/37
1305	4822 071 56301	⚠	Fuse T630mA 250V
1306	4822 253 30334	⚠	Fuse T1.25A 250V -/37
1306	4822 071 56301	⚠	Fuse T630mA 250V
1307	4822 071 51602	⚠	Fuse T1.6A 250V -/37
1307	4822 253 10128	⚠	Fuse T2A 250V
1308	4822 253 30334	⚠	Fuse T1.25A 250V -/37
1308	4822 071 56301	⚠	Fuse T630mA 250V
1309	4822 253 30334	⚠	Fuse T1.25A 250V -/37
1309	4822 071 56301	⚠	Fuse T630mA 250V

2251	4822 124 40244	2.2µF 20% 63V
2252	4822 124 40244	2.2µF 20% 63V
2253	5322 124 21189	100µF 20% 40V
2254	5322 124 21189	100µF 20% 40V
2255	4822 122 33169	680pF 10% 50V
2256	4822 122 33169	680pF 10% 50V
2257	4822 124 80196	47µF 20% 50V
2258	4822 124 80196	47µF 20% 50V
2259	4822 121 42007	100nF 10% 100V
2260	4822 121 42007	100nF 10% 100V
2265	4822 122 10459	560pF 10% 50V
2266	4822 122 10459	560pF 10% 50V
2267	4822 122 33195	100pF 10% 50V
2268	4822 122 33195	100pF 10% 50V
2269	4822 122 33195	100pF 10% 50V
2270	4822 122 33195	100pF 10% 50V
2271	4822 121 42007	100nF 10% 100V
2272	4822 121 42007	100nF 10% 100V
2273	4822 122 33195	100pF 10% 50V
2274	4822 122 33195	100pF 10% 50V
2276	4822 126 11316	47nF 50V
2277	4822 126 11316	47nF 50V
2282	4822 124 40435	10µF 20% 50V
2284	4822 124 42245	22µF 20% 63V
2286	4822 124 80196	47µF 20% 50V
2300	4822 124 42367	3300µF 20% 35V
2301	4822 124 42367	3300µF 20% 35V
2302	4822 124 42367	3300µF 20% 35V
2303	4822 124 40248	10µF 20% 63V
2304	4822 124 22412	2200µF 20% 16V
2305	4822 124 23794	470µF 20% 16V
2306	4822 122 33197	1nF 10% 50V
2308	4822 124 42246	470µF 20% 25V
2309	4822 124 40244	2.2µF 20% 63V
2312	4822 124 42392	470µF 20% 50V
2313	4822 124 42391	470µF 20% 63V
2314	4822 124 42245	22µF 20% 63V
2315	4822 124 80398	1000µF 20% 35V
2316	4822 124 40184	1000µF 20% 10V
2317	4822 124 42246	470µF 20% 25V
2318	4822 124 40248	10µF 20% 63V
2323	4822 121 42007	100nF 10% 100V
2324	4822 121 42007	100nF 10% 100V
2330	4822 121 42007	100nF 10% 100V

3251	4822 116 52269		3k3 5% 0.5W
3252	4822 116 52269		3k3 5% 0.5W
3253	4822 116 52224		470Ω 5% 0.5W
3254	4822 116 52224		470Ω 5% 0.5W
3255	4822 116 52291		56k 5% 0.5W
3256	4822 116 52291		56k 5% 0.5W
3257	4822 116 52256		2k2 5% 0.5W
3258	4822 116 52256		2k2 5% 0.5W
3259	4822 116 52256		2k2 5% 0.5W
3260	4822 116 52256		2k2 5% 0.5W
3261	4822 116 52291		56k 5% 0.5W
3262	4822 116 52291		56k 5% 0.5W
3263	4822 052 10478	⚠	4Ω7 5% 0.33W
3264	4822 052 10478	⚠	4Ω7 5% 0.33W
3265	4822 052 10478	⚠	4Ω7 5% 0.33W
3266	4822 052 10478	⚠	4Ω7 5% 0.33W
3280	4822 116 83863		1k 5% 0.5W
3281	4822 116 83863		1k 5% 0.5W
3282	4822 116 52263		2k7 5% 0.5W
3283	4822 052 10101	⚠	100Ω 5% 0.33W
3284	4822 116 83932	⚠	220Ω 5% 2W
3286	4822 116 52257		22k 5% 0.5W
3301	4822 116 83886		68Ω 5% 0.5W
3302	4822 116 83886		68Ω 5% 0.5W
3303	4822 116 83885		56Ω 5% 0.5W
3304	4822 116 83877		2k7 5% 0.5W
3305	4822 052 10101	⚠	100Ω 5% 0.33W
3306	4822 116 83873		2k2 5% 0.5W
3307	4822 052 10101	⚠	100Ω 5% 0.33W
3308	4822 053 21106	⚠	10M 5% 0.5W -/37
3310	4822 116 52276		3k9 5% 0.5W
3311	4822 052 10479	⚠	47Ω 5% 0.33W
3312	4822 116 52256		2k2 5% 0.5W
3313	4822 116 52263		2k7 5% 0.5W
3314	4822 116 52277		39k 5% 0.5W
3315	4822 116 52233		10k 5% 0.5W
3316	4822 051 10333		33k 2% 0.25W
3317	4822 116 52233		10k 5% 0.5W
3318	4822 050 11002		1k 1% 0.4W
3319	4822 116 83873		2k2 5% 0.5W
3320	4822 116 52233		10k 5% 0.5W
3321	4822 116 52283		4k7 5% 0.5W

5001	4822 146 31157	⚠	Mains Transformer -/21/30/34
5001	4822 146 31127	⚠	Mains Transformer -/20/22/25/37
5251	4822 157 53447		Bead Inductor -/20/22/37
5253	4822 157 53447		Bead Inductor
5254	4822 157 53447		Bead Inductor

6300	4822 130 82078	⚠	D5SBA20
6301	5322 130 80686		1N5392
6302	5322 130 80686		1N5392
6303	5322 130 30684		1N4002
6304	5322 130 30684		1N4002
6305	5322 130 30684		1N4002
6306	5322 130 30684		1N4002
6307	5322 130 30684		1N4002
6308	4822 130 34195		BZX79-C13
6309	4822 130 34278		BZX79-C6V8
6311	4822 130 34195		BZX79-C13
6312	4822 130 34281		BZX79-C15
6313	4822 130 31981		BZX79-C3V9
6314	4822 130 34233		BZX79-C5V1
6315	4822 130 30621		1N4148
6317	4822 130 30621		1N4148
6318	4822 130 31981		BZX79-C3V9
6320	4822 130 30621		1N4148

7251	4822 209 31514	⚠	STK4132II
7300	4822 130 61236	⚠	BD234
7301	4822 130 40937		BC548B
7302	4822 130 40937		BC548B
7303	4822 130 44197		BC558B
7304	5322 130 44786	⚠	BD675
7306	5322 130 60268	⚠	BD236

Note : Only the mentioned parts are normal service parts.

SERVICE TEST PROGRAM 1

Operating sequence	Display shows	Remarks	In case of problems check
Hold "Program" and "Preset Up" button down while Power on to enter Service test program.	µProcessor version # SERVICE	The master µProcessor version is display. After 2 seconds the "SERVICE" display appear.	
Press "Autoprogram" CAUTION: Activating this test will reset all presets, MW grid, 12/24 Hr clock and LW on/off feature.	CLR PROM	Clear Eeprom	
Press "Set clock" Repeated activation of "Set clock" will toggle between "SERVICE" and "32 KHZ".	32 KHZ	The Alarm buzzer is turned on and the clock is aligned by trimmer 2410 for 4096Hz at pin 10 of 1457 or pin 4 of 7400.	Check X'tal 5402.
Press "News"	KEY		
Press all other buttons	See Figure 1	Hexadecimal codes will be display.	
Press "News"	KEY OK	"KEY OK" is display.	"KEY **" will be display when failure or incomplete key test is done.
	SERVICE	After 2 seconds the "SERVICE" screen is restored.	Check the respective keyline in case an error occurs.
Press "Timer"	Full Display	Spatial LED is on while DBB LED is off. If the full display is left on for sometime, it will be change to "0"s.	Check display and power lines.
Press "Preset Up"	Half Display	DBB and Spatial sound LEDs turns on.	
Press "Preset Up"	Other half Display	DBB and Spatial sound LEDs turn off.	
Press "BAND" Repeated activation will toggle between "FAST" and "NORM" clock.	FAST CLK NORM CLK SERVICE	Use this to change the clock/timer speed function. In the fast mode quick customer check in the clock/alarm function can be done. Normal speed clock will be restored by Power off or activating reset button. After 2 seconds the "SERVICE" screen will be restored.	
Press "Standby" to end the service test program.			

Note: FW** xx - OTP version
FW** x - Maskversion
where FW** refers to the Type No.
xx or x refers to the version.

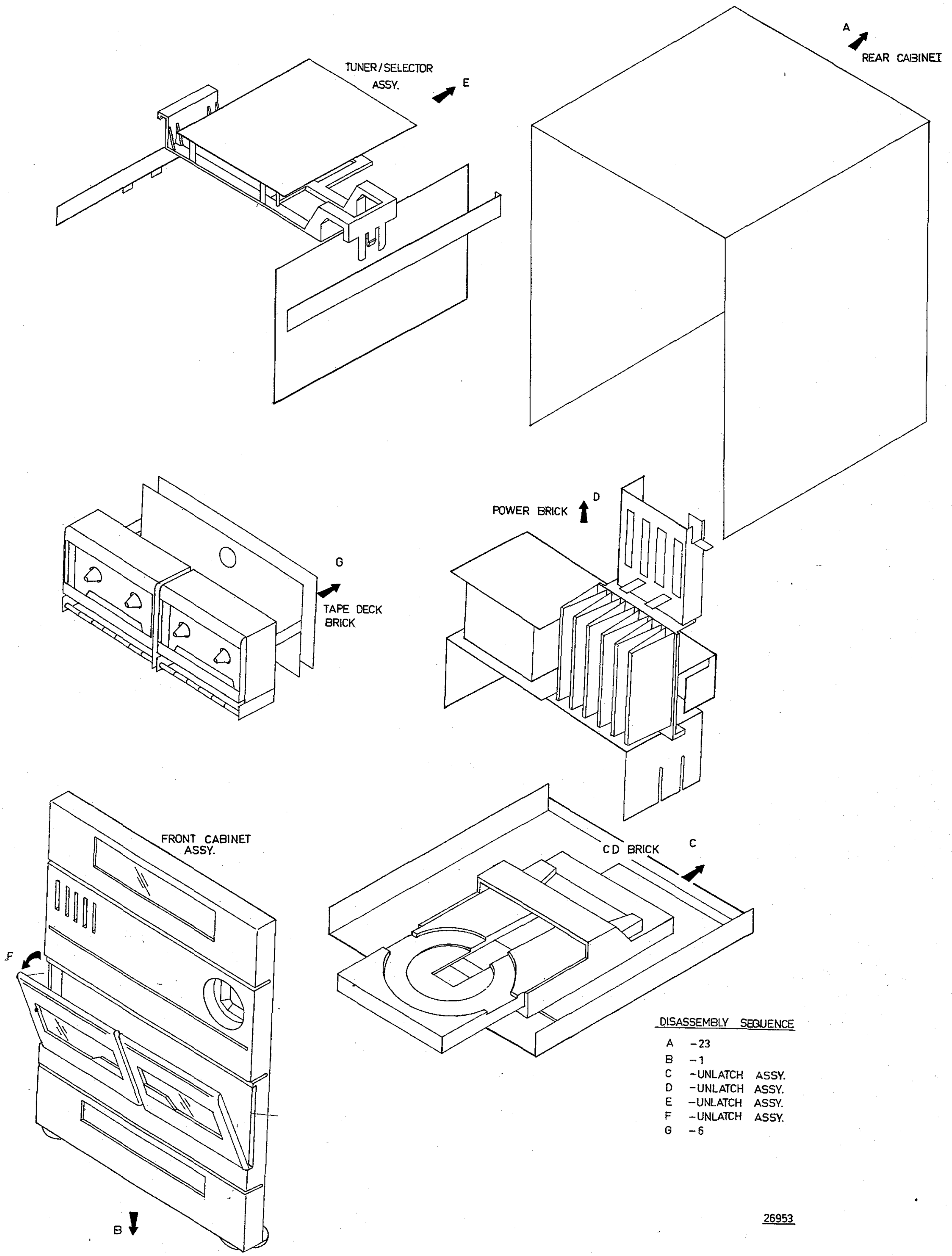
SERVICE TEST PROGRAM 2

Operating sequence	Display shows	Remarks	In case of problems check
To perform CD test press "CD" at the "SERVICE" screen.	SERVO YY	The CD servo version is display. YY = version number	Pressing the "Play" key at the "SERVICE" screen will enter into normal CD mode except error codes are display. A list of error codes are found in figure 3.
Press "Stop" - Service pos 0	SLEDGE	During this test the sledge will move outward.	
Press "Next" - Service pos 1	FOCUS	Focus is switch on.	
Press "Next" - Service pos 2	MOTOR	Disc motor is switch on.	
Press "Next" - Service pos 3	RADIAL	Radial is switch on.	
Pressing "Previous" will bring the set to the previous service mode.			
To end the Service test program press "Standby" at the "SERVICE" screen.			
To perform Tuner test ensure no disc is in the CD tray and press "Tuner" at the "SERVICE" screen.	Tuner version	Tuner version is scrolled in the display.	
Use the "Preset Up" and "Preset down" to display the loaded frequencies.	See figure 2	Service frequencies are now loaded into the EEROM of the µProcessor.	
	PROGRAM	FM auto-search level: With input level at 15µV adjust 3125 until "PROGRAM" just appear.	
Use Power off or Reset button to exit the Service program			

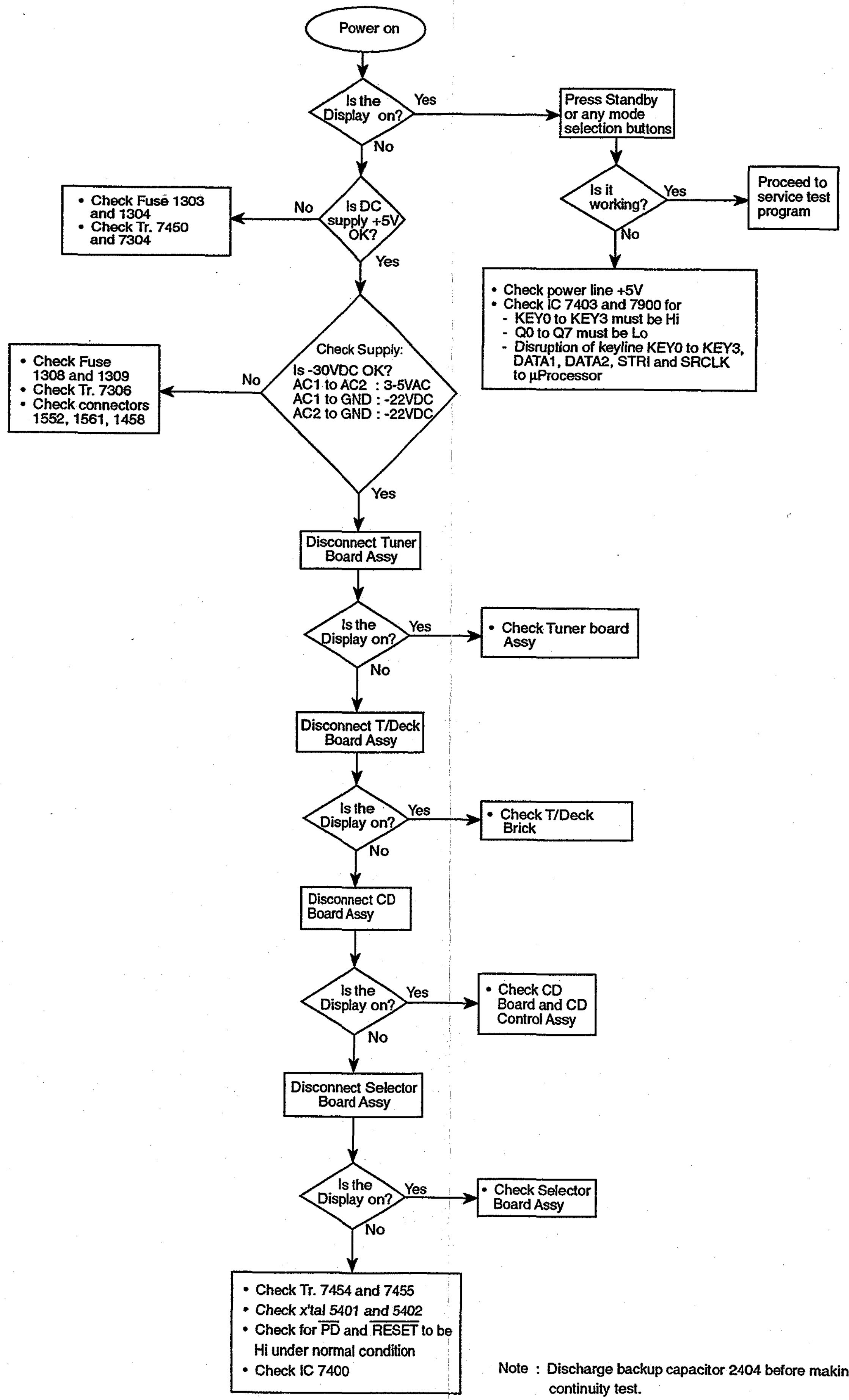
TRADE MODE

Operating sequence	Display shows	Remarks
Hold "Aux" and "Tape" down while Power on to enter the Trade mode. To exit Trade mode press the "Reset" button.	Commercial Story	During Trade mode the set provides 3 minutes of normal performance before returning to Trade mode. If during the normal function no sound source is detected it will return to Trade mode after 10 seconds.

DISASSEMBLY DRAWING


TUNER/SELECTOR ASSY.
E
A
REAR CABINET
POWER BRICK
D
G
TAPE DECK BRICK
FRONT CABINET ASSY.
CD BRICK
C
F
B
DISASSEMBLY SEQUENCE
A -23
B -1
C -UNLATCH ASSY.
D -UNLATCH ASSY.
E -UNLATCH ASSY.
F -UNLATCH ASSY.
G -6
26953

REPAIR CHART

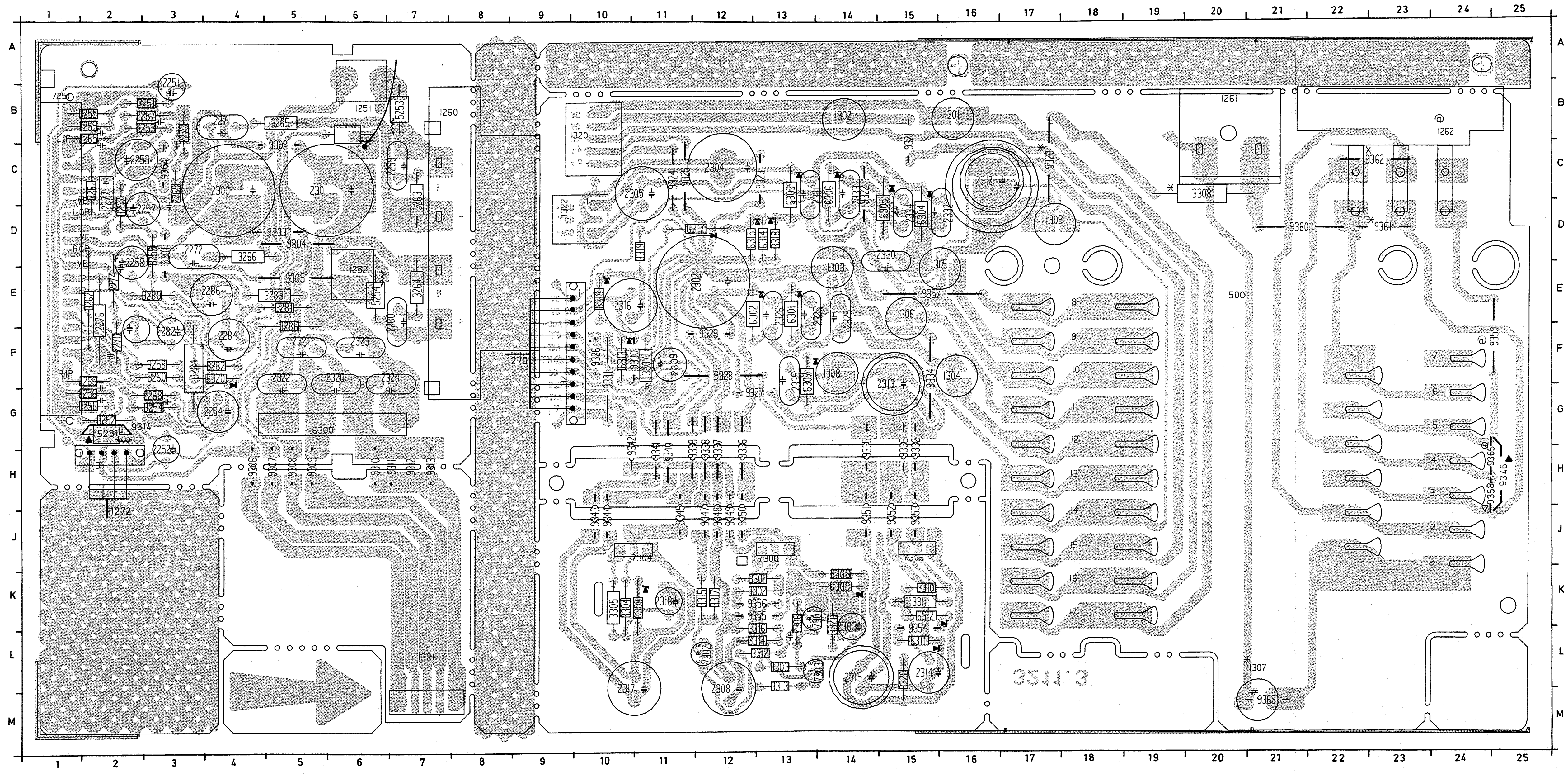

Power on
Is the Display on?
Yes
No
Press Standby or any mode selection buttons
Is it working?
Yes
No
Proceed to service test program
• Check power line +5V
• Check IC 7403 and 7900 for
- KEY0 to KEY3 must be Hi
- Q0 to Q7 must be Lo
- Disruption of keyline KEY0 to KEY3, DATA1, DATA2, STRI and SRCLK to µProcessor
Is DC supply +5V OK?
No
Yes
• Check Fuse 1303 and 1304
• Check Tr. 7450 and 7304
Check Supply:
Is -30VDC OK?
AC1 to AC2 : 3-5VAC
AC1 to GND : -22VDC
AC2 to GND : -22VDC
No
Yes
• Check Fuse 1308 and 1309
• Check Tr. 7306
• Check connectors 1552, 1561, 1458
Disconnect Tuner Board Assy
Is the Display on?
Yes
No
• Check Tuner board Assy
Disconnect T/Deck Board Assy
Is the Display on?
Yes
No
• Check T/Deck Brick
Disconnect CD Board Assy
Is the Display on?
Yes
No
• Check CD Board and CD Control Assy
Disconnect Selector Board Assy
Is the Display on?
Yes
No
• Check Selector Board Assy
• Check Tr. 7454 and 7455
• Check x'tal 5401 and 5402
• Check for $\overline{PD}$ and $\overline{RESET}$ to be Hi under normal condition
• Check IC 7400

Note : Discharge backup capacitor 2404 before making continuity test.

POWER BOARD COMPONENT LAYOUT

031	H2
032	G9
033	F9
1251	B6
1252	E6
1260	B7
1261	B20
1262	B24
1301	B16
1302	B14
1303	E14
1304	F16
1305	E15
1306	E15
1307	L21
1308	F14
1309	D17
1320	B10
1321	L7
1322	D9
2251	A3
2252	G3
2253	C2
2254	G4
2255	B2
2256	G2
2257	D2
2258	E2
2259	C7
2260	E7
2265	B2
2266	G2
2267	B3
2268	G3
2269	C3
2270	F2
2271	B4
2272	D3
2273	B3
2274	E2
2276	E2
2277	C3
2282	F3
2284	F4
2286	E4
2300	C4
2301	C5
2302	E12
2303	K14
2304	C12
2305	C11
2306	K13
2308	L12
2309	F11
2312	C16
2313	F15
2314	L15
2315	L14
2316	E10
2317	K10
2318	K11
2320	F6
2321	F5
2322	F5
2323	F6
2324	F7
2325	E13
2326	E13
2329	E14
2330	D15
2331	C13
2332	D16
2333	C14
2334	D15
2335	F13
3251	B3
3252	G2
3253	B3
3254	G3
3255	B2
3256	G2
3257	D2
3258	F3
3259	D3
3260	F3
3261	C2
3262	E2
3263	C7
3264	E7
3265	B5
3266	D4
3280	E3
3281	E5
3282	F4
3283	E5
3284	E3
3286	E5
3301	K13
3302	K13
3303	L13
3304	K10
3305	K10
3306	K14
3307	F11
3308	C20
3310	K15
3311	K15
3312	L13
3313	L13
3314	L13
3315	K12
3316	L13
3318	D13
3319	D11
5001	E20
5251	G2
6300	G5
6301	E13
6302	E12
6303	C13
6304	D15
6305	D15
6306	C14
6307	F13
6308	K11
6309	K14
6311	L15
6312	K15
6313	F10
6314	D13
6315	D12
6317	D12
6318	E10
7251	B1
7300	J13
7301	K14
7302	L12
7303	L14
7304	J11
7306	J15
9301	D3
9302	C5
9303	D5
9304	D5
9305	E5
9306	H4
9307	H5
9308	H5
9309	H5
9310	H6
9311	H7
9312	H7
9313	H7
9314	G2
9320	C17
9321	C15
9322	C14
9323	C12
9324	C11
9325	C11
9326	F10
9327	G12
9328	F12
9329	F12
9330	F11
9331	F10
9332	G15
9333	G15
9334	F15
9335	H14
9336	G12
9337	G12
9338	G12
9339	G11
9340	G11
9341	G11
9342	G11
9343	J10
9344	J10
9345	J11
9346	H25
9347	J12
9348	J12
9349	J12
9350	J12
9351	J14
9352	J15
9353	J15
9354	K15
9355	K13
9356	K13
9357	E15
9358	H25
9359	F25
9360	D21
9361	D23
9362	C23
9363	M21
9364	C2
9365	H24
1270	F8
1272	J2
1273	A7
3317	K12
3320	L15
3321	L13

5252	B6
5253	B7
5254	E6
6320	F4


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
A
B
C
D
E
F
G
H
J
K
L
M
2251
7251
2253
2300
2301
1251
5253
1260
1320
2304
2305
2312
1302
1301
1261
1262
3308
9360
9361
9362
1322
2302
2316
2309
1303
1305
1306
1308
1309
2313
1304
5001
1252
3266
3264
2286
2284
2254
2252
6300
1270
1272
1321
7304
7300
7306
2318
2317
2308
2315
2314
1307
9363
3305
3311
9354
9356
9355
9357
9327
9328
9329
+VE
LOP
+VE
ROP
-VE
RIP
LIP

NOTE :

▲ FOR -/20 ONLY

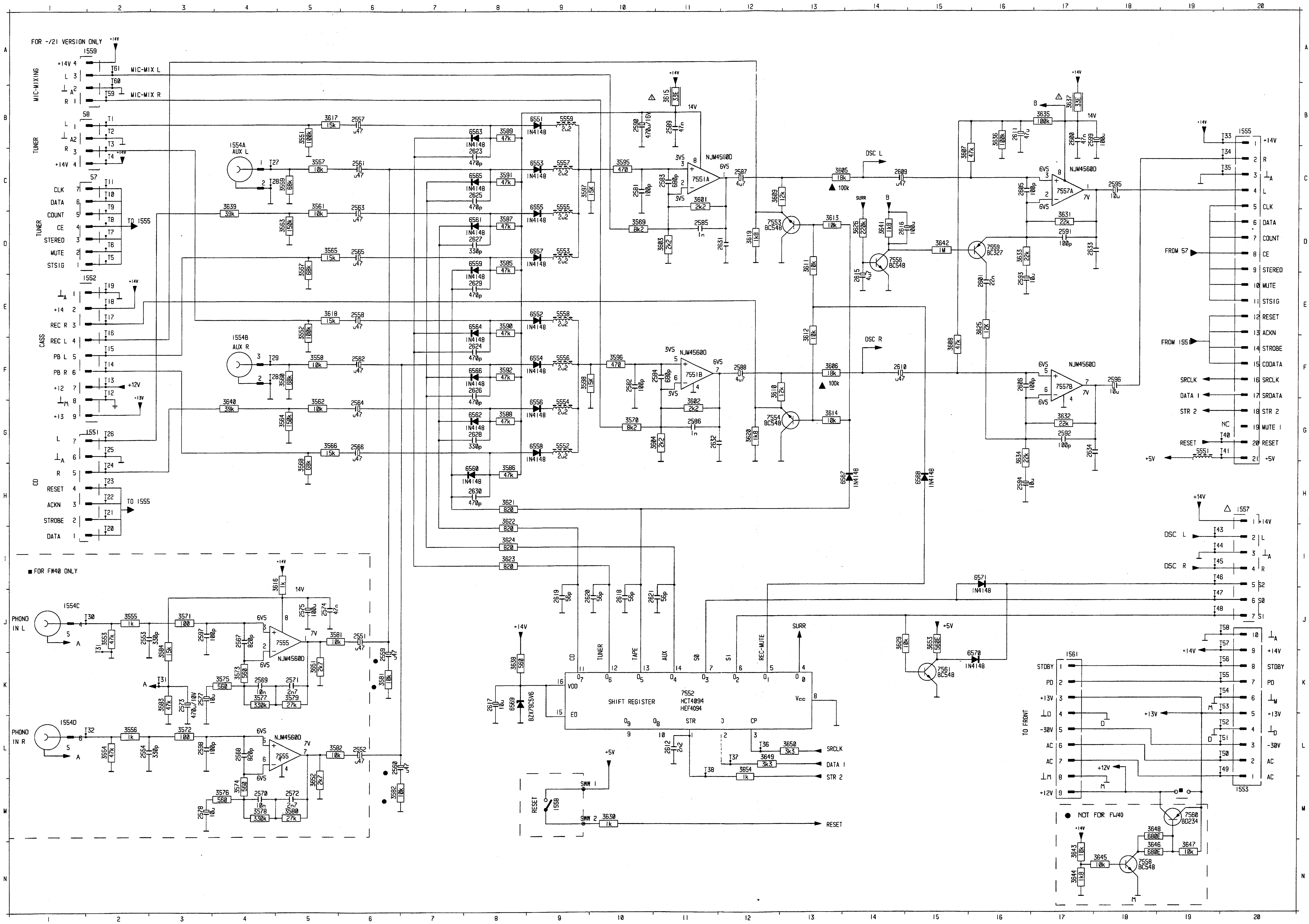
@ FOR -/21 AND -/33 ONLY

▽ FOR -/25 AND -/30 ONLY

✱ FOR -/37 ONLY

⊕ FOR -/33 ONLY

SELECTOR CIRCUIT DIAGRAM

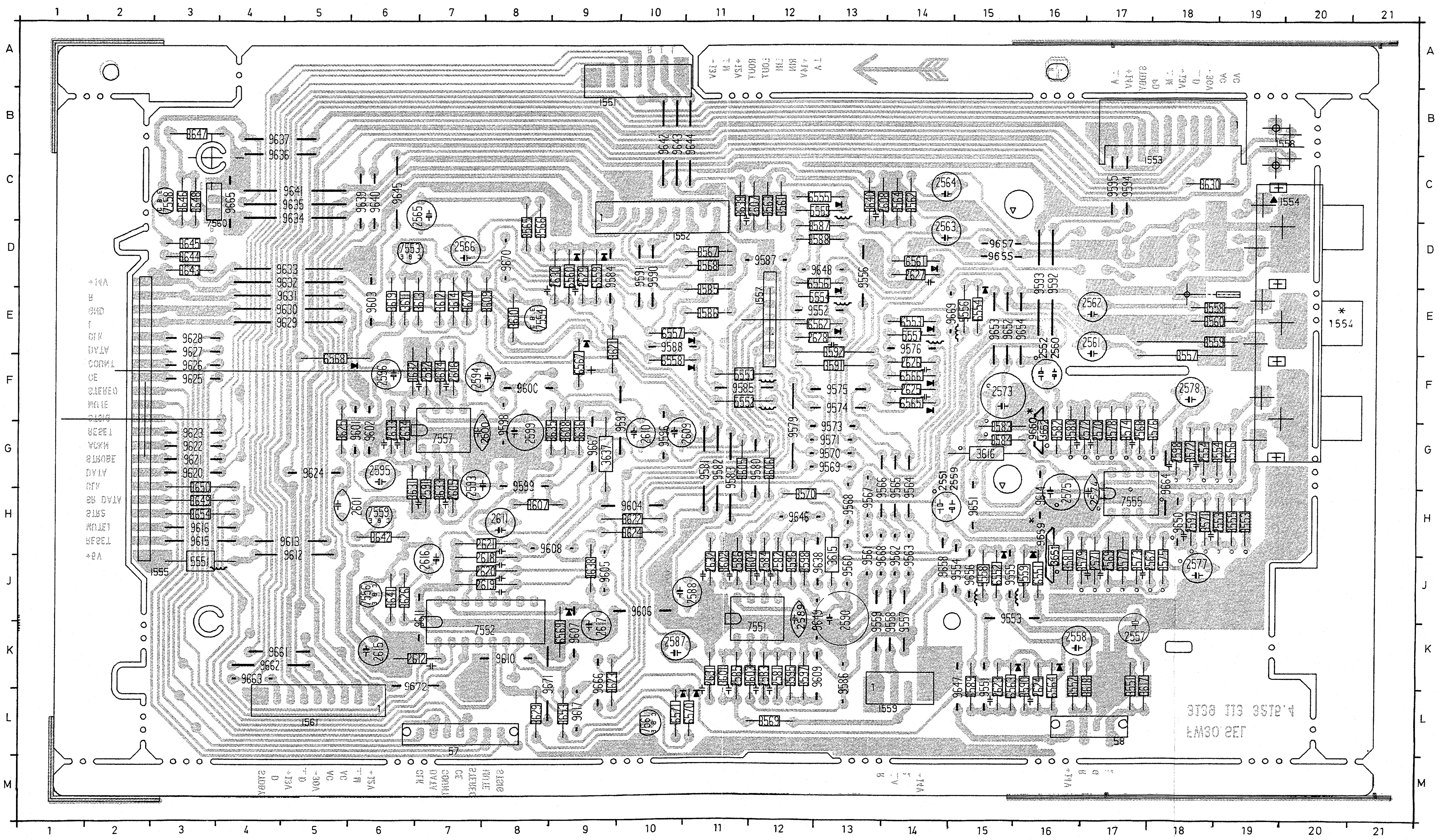

FOR -/21 VERSION ONLY
MIC-MIXING
MIC-MIX L
MIC-MIX R
TUNER
CLK
DATA
COUNT
CE
STEREO
MUTE
STSIG
TO 1555
CASS
REC R
REC L
PB L
PB R
CD
RESET
ACKN
STROBE
1554A AUX L
1554B AUX R
NJM4560D
7551A
7551B
7553 BC548
7554 BC548
7556 BC548
7559 BC327
7557A
7557B
OSC L
OSC R
SURR
FROM 57
FROM 1551
SRCLK
DATA 1
STR 2
MUTE 1
1555
1557
■ FOR FW40 ONLY
1554C PHONO IN L
1554D PHONO IN R
7555
7552 SHIFT REGISTER HCT4094 HEF4094
BZX79C5V6
RESET
SWW 1
SWW 2
1558
REC-MUTE
7561 BC548
1561
1553
TO FRONT
STDBY
PD
● NOT FOR FW40
7560 BD234
7558 BC548

1551	G 1	3622	H 8
1552	E 1	3623	I 8
1553	M20	3624	I 8
1554A	B 4	3625	E16
1554B	E 4	3626	D14
1554C	J 1	3629	J14
1554D	L 1	3630	M10
1555	B20	3631	D17
1557	H20	3632	G17
1558	M 9	3633	D16
1559	A 1	3634	G16
1561	K17	3635	B17
2551	J 6	3636	B16
2552	L 6	3637	B17
2553	J 2	3638	K 8
2554	L 2	3639	C 4
2557	B 6	3640	G 4
2558	E 6	3641	D14
2559	K 6	3642	D15
2560	L 6	3643	N17
2561	C 6	3644	N17
2562	F 6	3645	N18
2563	C 6	3646	N18
2564	G 6	3647	N19
2565	D 6	3648	M18
2566	G 6	3649	L12
2567	J 4	3650	L13
2568	L 4	3651	K 5
2569	K 4	3652	M 5
2570	M 4	3653	J15
2571	K 5	3654	L12
2572	M 5	5551	G19
2573	K 3	5552	G 9
2574	J 5	5553	D 9
2575	J 5	5554	G 9
2577	K 3	5555	C 9
2578	M 3	5556	F 9
2581	C10	5557	C 9
2582	F10	5558	E 9
2583	C11	5559	B 9
2584	F11	57	C 2
2585	D11	58	B 1
2586	G11	6551	B 9
2587	C12	6552	E 9
2588	F12	6553	C 9
2589	B11	6554	F 9
2590	B10	6555	C 9
2591	D17	6556	G 9
2592	G17	6557	D 9
2593	E16	6558	G 9
2594	H16	6559	D 8
2595	C18	6560	H 8
2596	F18	6561	D 8
2597	J 3	6562	G 8
2598	L 3	6563	B 8
2599	B17	6564	E 8
2600	B17	6565	C 8
2601	E16	6566	F 8
2605	C16	6567	H14
2606	F16	6568	H15
2609	C14	6569	K 8
2610	F14	6570	K16
2611	B16	6571	I16
2612	L11	7551A	C11
2615	E14	7551B	F11
2616	D14	7552	K11
2617	K 8	7553	D12
2618	J10	7554	G12
2619	J 9	7555	J 5
2620	J 9	7555	L 5
2621	J10	7556	D14
2623	C 8	7557A	C17
2624	F 8	7557B	F17
2625	C 8	7558	N18
2626	F 8	7559	D16
2627	D 8	7560	M19
2628	G 8	7561	K15
2629	E 8	SWW 1	M 9
2630	H 8	SWW 2	M 9
2631	D12		
2632	G11		
2633	D17		
2634	G17		
3551	B 5		
3552	E 5		
3553	J 2		
3554	L 2		
3555	J 2		
3556	L 2		
3557	C 5		
3558	F 5		
3559	C 5		
3560	F 5		
3561	C 5		
3562	G 5		
3563	D 5		
3564	G 5		
3565	D 5		
3566	G 5		
3567	D 5		
3568	H 5		
3569	D10		
3570	G10		
3571	J 3		
3572	L 3		
3573	K 4		
3574	M 4		
3575	K 4		
3576	M 4		
3577	K 4		
3578	M 4		
3579	K 5		
3580	M 5		
3581	K 6		
3581	J 5		
3582	L 5		
3582	M 6		
3583	K 3		
3584	J 3		
3585	D 8		
3586	H 8		
3587	D 8		
3588	G 8		
3589	B 8		
3590	E 8		
3591	C 8		
3592	F 8		
3595	C10		
3596	F10		
3597	C 9		
3598	F 9		
3601	C11		
3602	G11		
3603	D11		
3604	G11		
3605	C13		
3606	F13		
3607	C15		
3608	F15		
3609	C12		
3610	F12		
3611	D13		
3612	E13		
3613	D13		
3614	G13		
3615	B11		
3616	I 5		
3617	B 5		
3618	E 5		
3619	D12		
3620	G12		
3621	H 8		

▲ FOR FW20 ONLY
△ NOT FOR FW20
■ FOR FW40 ONLY
● NOT FOR FW40

SELECTOR BOARD COMPONENT LAYOUT

057	L16	2554	G18	2571	J17	2589	K12	2607	C12	2625	F14	3556	G19	3573	J17	3588	D13	3607	H8	3622	H10	3637	G9	5552	F11	6558	E10	7553	D6	9558	E10	9574	F13	9592	D16	9607	K9	9624	G5	9639	C6	9654	E16	3569	L12
058	L17	2557	K17	2572	G17	2590	K13	2608	D12	2626	D14	3557	E18	3574	G17	3589	L15	3608	G9	3623	K9	3638	J9	5553	F11	6559	D9	7554	E9	9559	K13	9575	F13	9593	D16	9608	H9	9625	F3	9640	C6	9656	J15	3570	H12
1551	B9	2558	K16	2573	F15	2591	H6	2609	G11	2627	D14	3558	E18	3575	J18	3590	L16	3609	E8	3624	H10	3639	C11	5554	D13	6560	D9	7555	H17	9560	J13	9576	E14	9594	C17	9609	K13	9626	F3	9641	C4	9658	J14	3651	H16
1552	D10	2559	H15	2574	H17	2592	F6	2610	G10	2628	E12	3559	E18	3576	G18	3591	F13	3610	E8	3625	G5	3640	C13	5555	C13	6561	D14	7556	J6	9561	J13	9579	G12	9595	C17	9610	K8	9627	E3	9642	B10	9659	H16	3652	G16
1553	B18	2560	F16	2575	H16	2593	H7	2611	H8	2629	D9	3560	E18	3577	J17	3592	F13	3611	E6	3626	J6	3641	J6	5556	D15	6562	F13	7557	G7	9562	J14	9580	G12	9596	G10	9611	K7	9628	E3	9643	B10	9660	G16	3653	L9
1554	E20	2561	E17	2577	J18	2594	F7	2612	K7	2630	D9	3561	C12	3578	G17	3595	K12	3612	E7			3642	H6	5557	E14	6563	L15	7558	C3	9563	J14	9581	G11	9597	G10	9612	H5	9629	E5	9644	B11	9661	K4		
1554	G19	2562	E17	2578	F18	2595	G6	2615	K6	2631	K11	3562	C14	3579	J16	3596	J12	3613	E7			3643	D3	5558	J15	6564	L16	7559	H6	9564	H14	9582	G11	9598	G8	9613	H5	9630	E5	9645	C6	9662	K4	6570	L10
1556	J3	2563	D14	2581	K12	2596	F6	2616	J7	2632	J11	3563	C12	3580	G16	3597	K12	3614	E7	3629	L8	3644	D3	5559	J16	6565	F14	7560	C3	9565	H14	9583	G11	9599	G8	9614	H16	9631	E5	9646	H12	9663	K4	6571	L10
1557	E12	2564	C14	2582	J12	2597	H18	2617	K9	2633	G6	3564	C14	3581	J16	3598	J12	3615	J13	3630	C18	3645	D3	6551	J16	6566	F14	9551	L15	9566	H14	9584	D9	9600	F8	9615	H3	9632	D5	9647	K15	9664	H18	7561	L10
1558	B20	2565	C6	2583	K12	2598	G18	2618	H8	2634	G6	3565	D8	3582	G16	3601	K14	3616	G15	3631	H7	3646	C3	6552	J15	6567	E9	9552	E13	9567	H13	9585	F11	9601	G6	9616	H3	9633	D5	9648	E13	9665	C4		
1559	L14	2566	D7	2584	J12	2599	G8	2619	J8	3551	L17	3566	D8	3583	G15	3602	J11	3617	L17	3632	F7	3647	B3	6553	E14	6568	F5	9553	J15	9568	H13	9586	K13	9602	G6	9617	L9	9634	C4	9649	J13	9666	K9		
1561	L6	2567	J18	2585	K11	2600	G8	2620	J8	3552	L16	3567	D11	3584	G15	3603	K12	3618	L17	3633	H7	3648	C3	6554	E15	6569	K9	9554	J14	9569	G13	9587	D12	9603	E6	9620	G3	9635	C4	9650	H18	9667	G9		
2551	G15	2568	G17	2586	J11	2601	H6	2621	H8	3553	H18	3568	D11	3585	E11	3604	J12	3619	E6	3634	F7	3649	H3	6555	C13	6670	D8	9555	J15	9570	G13	9588	K14	9604	H10	9621	G3	9636	C4	9651	H15	9668	J14	9655	D15
2552	E16	2569	J17	2587	K10	2605	H7	2623	L15	3554	G18	3571	H18	3586	E11	3605	G11	3620	E7	3635	G9	3650	G3	6556	D13	7551	K12	9556	D13	9571	G13	9590	D10	9605	J9	9622	G3	9637	B4	9652	E16	9669	E15	9657	D15
2553	H19	2570	G17	2588	J11	2606	F7	2624	L16	3555	H19	3572	G18	3587	D13	3606	G12	3621	F9	3636	G9	5551	J3	6557	E10	7552	K8	9557	K14	9573	F13	9591	D10	9606	J10	9623	G3	9638	J13	9653	E15	9671	K8	9672	K 6



LEGEND

* FOR FW20 AND FW30 ONLY
(CINCH SOCKET FOR AUX INPUT ONLY)

▲ FOR FW40 ONLY
(CINCH SOCKET FOR AUX AND PHONO INPUT)

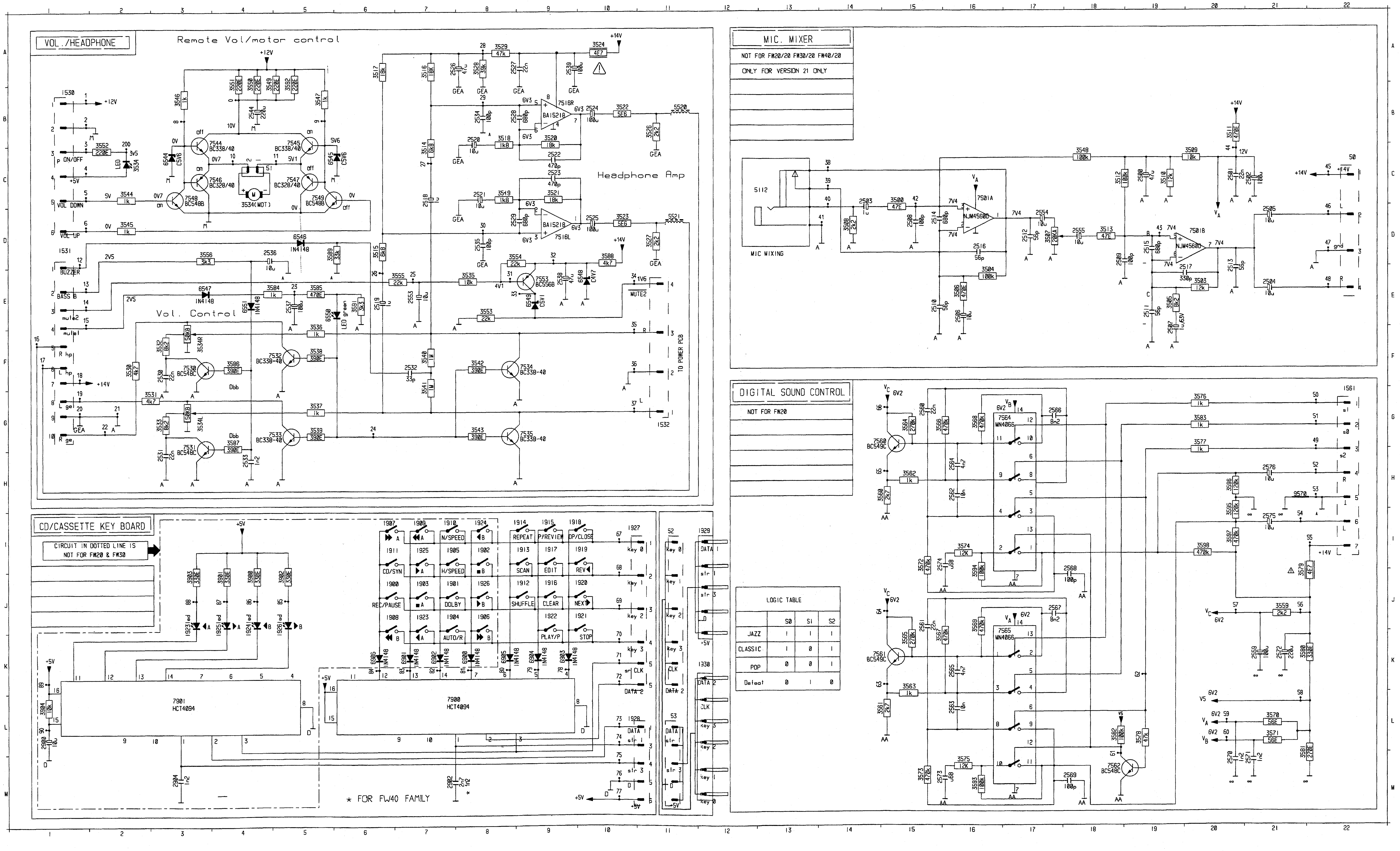
○ FOR FW40 ONLY.

@ NOT FOR FW20

PCS 63 074

COMBI CIRCUIT DIAGRAM

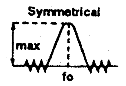
0	B 4
1	B 1
10	C 4
11	C 5
12	D 1
13	E 1
14	E 1
15	E 1
1530	B 1
1530	B 1
1530	B 1
1530	C 1
1530	C 1
1530	D 1
1531	D 1
1531	E 1
1531	E 1
1531	E 1
1531	F 1
1531	F 1
1531	F 1
1531	G 1
1531	G 1
1531	G 1
1532	G11
1532	F11
1532	E11
1532	E11
1561	F22
1561	G22
1561	G22
1561	H22
1561	H22
1561	I22
1561	I22
16	F 1
17	F 1
18	F 1
19	F 1
1900	J 6
1901	J 7
1902	I 8
1903	J 7
1904	J 7
1905	I 7
1906	J 8
1907	I 6
1908	J 6
1909	I 7
1910	I 7
1911	I 6
1912	J 9
1913	I 9
1914	I 9
1915	I 9
1916	J 9
1917	I 9
1918	I 9
1919	I10
1920	J10
1921	J10
1922	J 9
1923	J 7
1923led	J 3
1924	I 8
1924led	J 4
1925	I 7
1925led	J 4
1926	J 8
1926led	J 5
1927	I10
1927	I11
1927	J11
1927	K11
1927	K11
1927	K11
1928	L10
1928	L11
1928	M11
1928	M11
1928	M11
1929	I11
1929	I12
1929	J12
1929	J12
1929	J12
1930	K11
1930	L11
1930	L11
1930	L11
1930	M11
1930	M12
2	B 1
20	G 1
200	B 2
21	G 2
22	G 2
23	E 5
24	G 6
25	E 7
2500	C19
2501	C20
2502	C21
2503	C14
2504	E21
2505	D21
2506	E16
2507	E19
2508	D15
2509	D18
2510	E15
2511	E19
2512	D17
2513	D20
2514	D15
2515	D19
2516	D16
2517	D19
2518	C 7
2519	D 6
2520	B 8
2521	C 8
2522	C 9
2523	C 9
2524	B10
2525	D10
2526	A 7
2527	A 8
2528	B 8
2529	D 8
2530	F 3
2531	G 3
2532	F 7
2533	H 4
2534	B 8
2535	D 8
2536	D 4
2537	E 5
2538	E 9
2539	A 9
2544	B 4
2553	E 7
2554	D17
2555	D18
2559	K21
2560	G15
2561	J15
2562	H16
2563	L16
2564	H16
2565	K16
2566	G17
2567	J17
2568	I18
2569	M18
2570	M20
2571	M21
2572	K21
2573	M15
2574	I15
2575	I21
2576	H21
26	D 6
27	B 7
28	A 8
29	B 8
2900	L 1
2902	M 7
2904	M 3
31	E 8
32	D 9
33	E 8
34	E10
35	E10
3500	C15
3503	E20
3504	E16
3505	E19
3506	E16
3507	D17
3508	D14
3509	C20
3510	C19
3511	B20
3512	C18
3513	D18
3514	B 7
3515	D 7
3516	A 7
3517	A 6
3518	B 8
3519	C 8
3520	B 9
3521	C 9
3522	B10
3523	D10
3524	A10
3526	B11
3527	D11
3528	A 8
3529	A 8
3530	F 2
3531	G 3
3532	F 3
3533	G 3
3534	C 2
3534L	G 3
3534R	F 3
3535	E 8
3536	E 5
3537	G 5
3538	F 5
3539	G 5
3540	F 7
354	F 7
3542	F 8
3543	G 8
3544	C 2
3545	D 2
3546	B 3
3547	B 5
3548	C18
3549	A 4
3550	A 4
3551	A 4
3552	B 2
3553	E 8
3554	D 8
3555	E 7
3556	D 3
3559	J21
3560	H14
3561	L14
3562	H15
3563	K15
3564	G15
3565	K15
3566	G15
3567	J15
3568	G16
3569	J16
3570	L21
3571	L21
3572	I15
3573	M15
3574	I16
3575	M16
3576	G20
3577	G20
3578	L19
3579	I21
3580	K21
3581	L21
3582	L18
3583	G20
3584	E 4
3585	E 5
3586	F 4
3587	G 4
3588	D10
3589	D 5
3590	G 2
3591	E 6
3592	A 5
3593	M16
3594	I16
3595	H20
3596	H20
3597	I20
3598	I20
36	F10
37	G10
38	C14
39	C14
3900	I 4
3901	I 4
3902	I 5
3903	I 3
3904	L 1
4	C 1
40	C14
41	D14
42	C15
43	D19
44	C20
45	C22
46	C22
47	D22
48	E22
49	G22
5	C 1
50	C22
50	G22
50	D22
50	D22
50	E22
51	G22
51	C 4
51	C 4
52	H22
52	I11
52	I11
52	J11
52	K11
52	K11
52	K11
53	H22
53	L11
53	L11
53	M11
53	M11
53	M11
54	I21
55	I22
5520	B11
5521	D11
56	J21
57	J20
58	K21
59	L20
6	D 1
60	L20
61	L18
62	K19
63	K14
64	J14
65	H14
6544	C 3
6545	C 5
6546	D 5
6547	E 3
6548	E10
6549	E 9
6550	E 5
6551	E 4
66	G14
67	I10
68	I10
69	J10
6900	K 8
6901	K 7
6902	K 7
6903	K 9
6904	K 9
6905	K 8
6906	K 6
70	J10
71	K10
72	K10
73	L10
74	L10
75	L10
7501A	C16
7501B	D20
7516L	D 9
7516R	B 9
7530	F 3
7531	G 3
7532	F 5
7533	G 5
7534	F 9
7535	G 9
7544	B 3
7545	B 5
7546	C 3
7547	C 5
7548	C 3
7549	C 5
7553	E 9
7560	G15
7561	K15
7562	M18
7564	G16
7565	J16
76	M10
77	M10
78	K 9
79	K 9
7900	L 7
7901	L 3
8	B 3
80	K 8
81	K 8
82	K 7
83	K 7
84	K 6
85	J 5
86	J 4
87	J 4
88	J 3
89	K 1
9	B 5
90	L 1
9570	H21



VOL./HEADPHONE
Remote Vol/motor control
Vol. Control
Headphone Amp
BA15218
NJM4560D
BC338/40
BC328/40
BC548B
BC548C
BC556B
3534(MOT)
MUTE2
TO POWER PCB
ON/OFF
VOL DOWN
VOL UP
BUZZER
BASS B
mute2
mute1
R hp
L hp
L gel
R gel
GEA
MIC. MIXER
NOT FOR FW20/20 FW30/20 FW40/20
ONLY FOR VERSION 21 ONLY
MIC MIXING
DIGITAL SOUND CONTROL
NOT FOR FW20
MM4066
BC549C
CD/CASSETTE KEY BOARD
CIRCUIT IN DOTTED LINE IS NOT FOR FW20 & FW30
* FOR FW40 FAMILY
HCT4094
N/SPEED
CD/SYN
H/SPEED
REC/PAUSE
DOLBY
AUTO/R
REPEAT
P/REVIEW
OP/CLOSE
SCAN
EDIT
REV
SHUFFLE
CLEAR
NEXT
PLAY/P
STOP
key 0
key 1
key 2
key 3
DATA 1
DATA 2
CLK
str 1
str 3

LOGIC TABLE			
	S0	S1	S2
JAZZ	1	1	1
CLASSIC	1	0	1
POP	0	0	1
Defeat	0	1	0

TUNER ADJUSTMENT

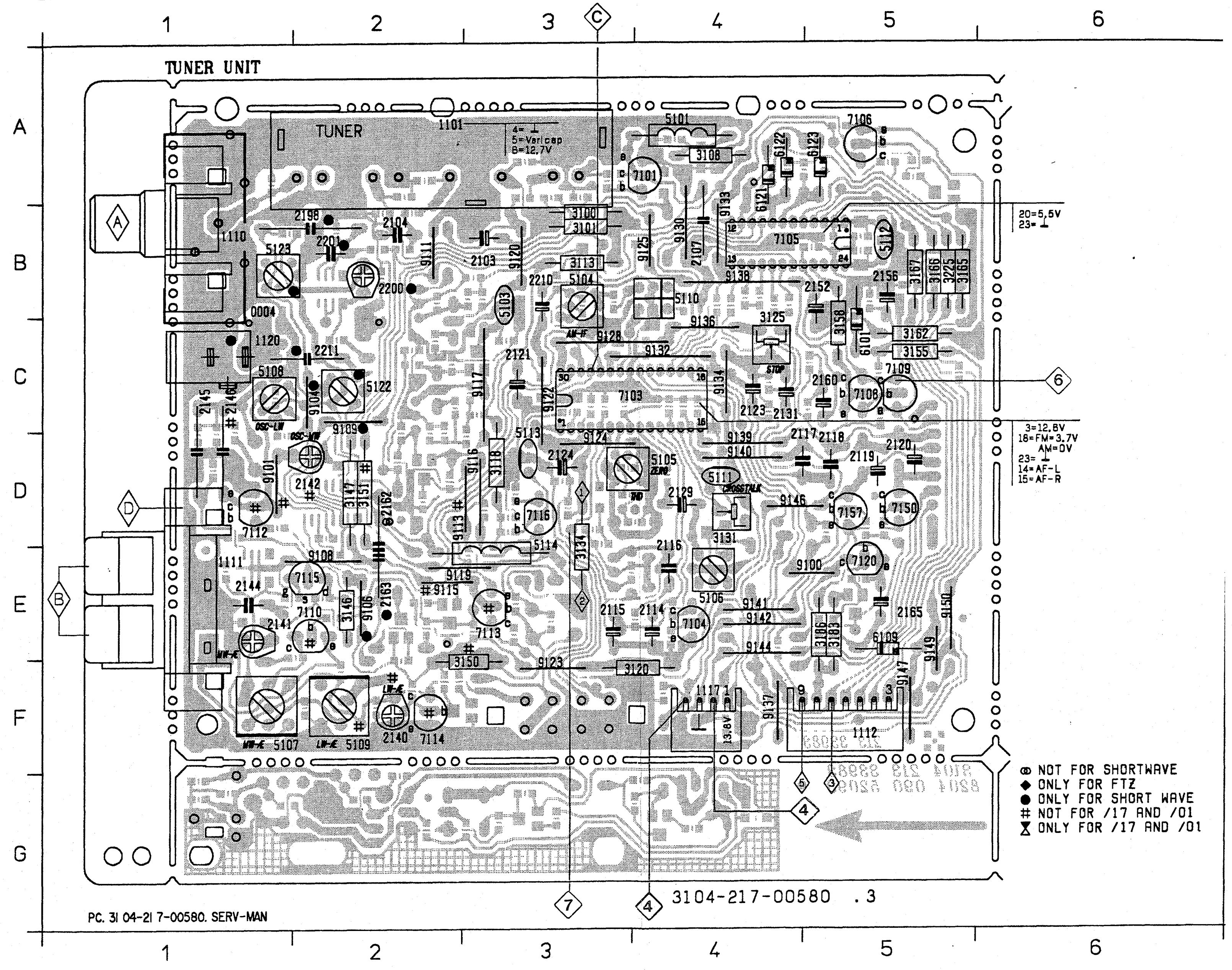
SK...	FREQUENCY	I/P	DISPLAY	ADJUST	O/P	SCOPE/METER
Varicap alignment						
FM 87.5-108MHz			108MHz 87.5MHz	check	◇6	8V ± 1V 1.65V ± 0.35V
FM @ 65-108MHz			108MHz 65MHz	check		8.75V ± 1.75V 2.25V ± 0.75V
LW + 153-279kHz			279kHz 153kHz	5108 check		8.5V 1V ± 0.3V
MW 522-1611kHz (530-1700kHz)			1611kHz (1710kHz)	2142 (5108)		8.5V (8.5V)
			522kHz (530kHz)	check		1.1V ± 0.3V (1.0V ± 0.3V)
FM						
FM	98MHz mod = 1kHz Δf = 75kHz 1mV	◇A	98MHz	5105	◇1–◇2	0V ± 0.02V
	98MHz 90% Left 9% Pilot 1mV		98MHz	3131	◇4 Right	min.
				check	◇3	Lo
	98MHz mod = 1kHz Δf = 75kHz 15µV		98MHz	3125	◇5	Hi ─┐ └── Lo
AM-IF						
MW	450kHz Δf = 10kHz 50Hz	◇C	1494kHz (1600kHz)	5104	◇7	 Symmetrical max fo
AM-RF						
LW *	155kHz 270kHz	◇B	155kHz 270kHz	5109 2140	◇4	↕ max.
MW *	558kHz (560kHz)		558kHz (560kHz)	5107		
	1494kHz (1600kHz)		1494kHz (1600kHz)	2141		

* Mod 1kHz 30% AM
(..) For Grid = 10kHz
+ For LW version only
@ For /34 version only

Repeat ↕

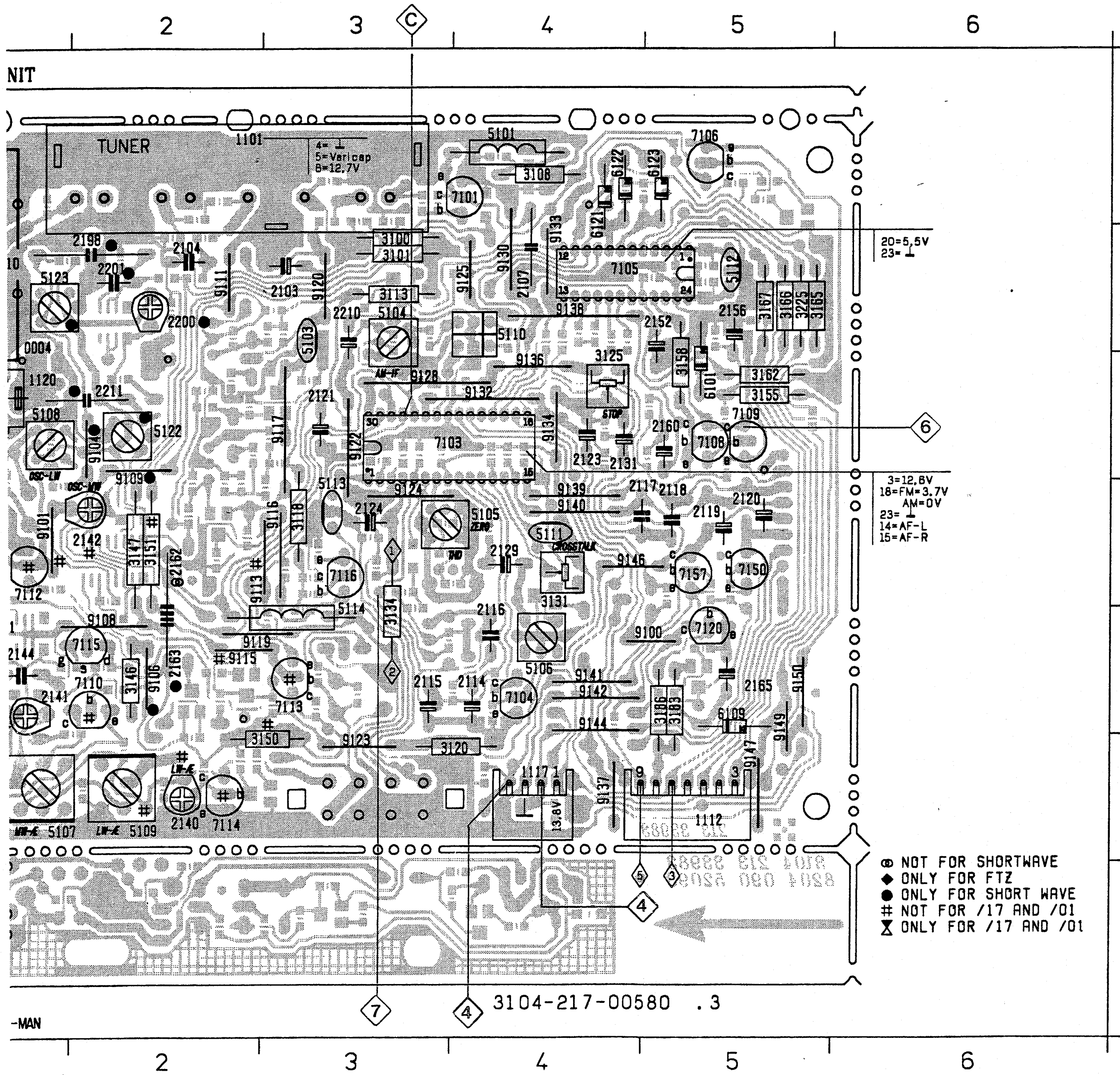
TUNER 92 COMPONENT AND CHIP LAYOUT - For /22 and other versions produced before wk 249.

0004	B1
1101	A2
1110	B1
1111	E1
1112	F5
1117	F4
1120	C1
2103	B3
2104	B2
2107	B4
2114	E4
2115	E3
2116	E4
2117	D5
2118	D5
2119	D5
2120	D5
2121	C3
2123	C4
2124	D3
2129	D4
2131	C4
2140	F2
2141	E1
2142	D2
2144	E1
2145	C1
2146	C1
2152	B5
2156	B5
2160	C5
2162	D2
2163	E2
2165	E5
2198	B2
2200	B2
2201	B2
2210	B3
2211	C2
3100	B3
3101	B3
3108	A4
3113	B3
3118	D3
3120	F4
3125	C4
3131	D4
3134	E3
3146	E2
3147	D2
3150	F3
3151	D2
3155	C5
3158	C5
3162	C5
3165	B5
3166	B5
3167	B5
3183	E5
3186	E5
3225	B5
5101	A4
5103	B3
5104	B3
5105	D4
5106	E4
5107	F1
5108	C1
5109	F2
5110	B4
5111	D4
5112	B5
5113	D3
5114	E3
5122	C2
5123	B1
6101	C5
6109	E5
6121	A4
6122	A4
6123	A5
7101	A4
7103	C3
7104	E4
7105	B4
7106	A5
7108	C5
7109	C5
7110	E2
7112	D1
7113	E3
7114	F2
7115	E2
7116	D3
7120	E5
7150	D5
7157	D5
9100	E5
9101	D1
9104	C2
9106	E2
9108	E2
9109	D2
9111	B2
9113	D2
9115	E2
9116	D3
9117	C3
9119	E2
9120	B3
9122	C3
9123	F3
9124	D3
9125	B4
9128	C3
9130	B4
9132	C4
9133	B4
9134	C4
9136	C4
9137	F4
9138	B4
9139	D4
9140	D4
9141	E4
9142	E4
9144	E4
9146	D4
9147	F5
9149	E5
9150	E5

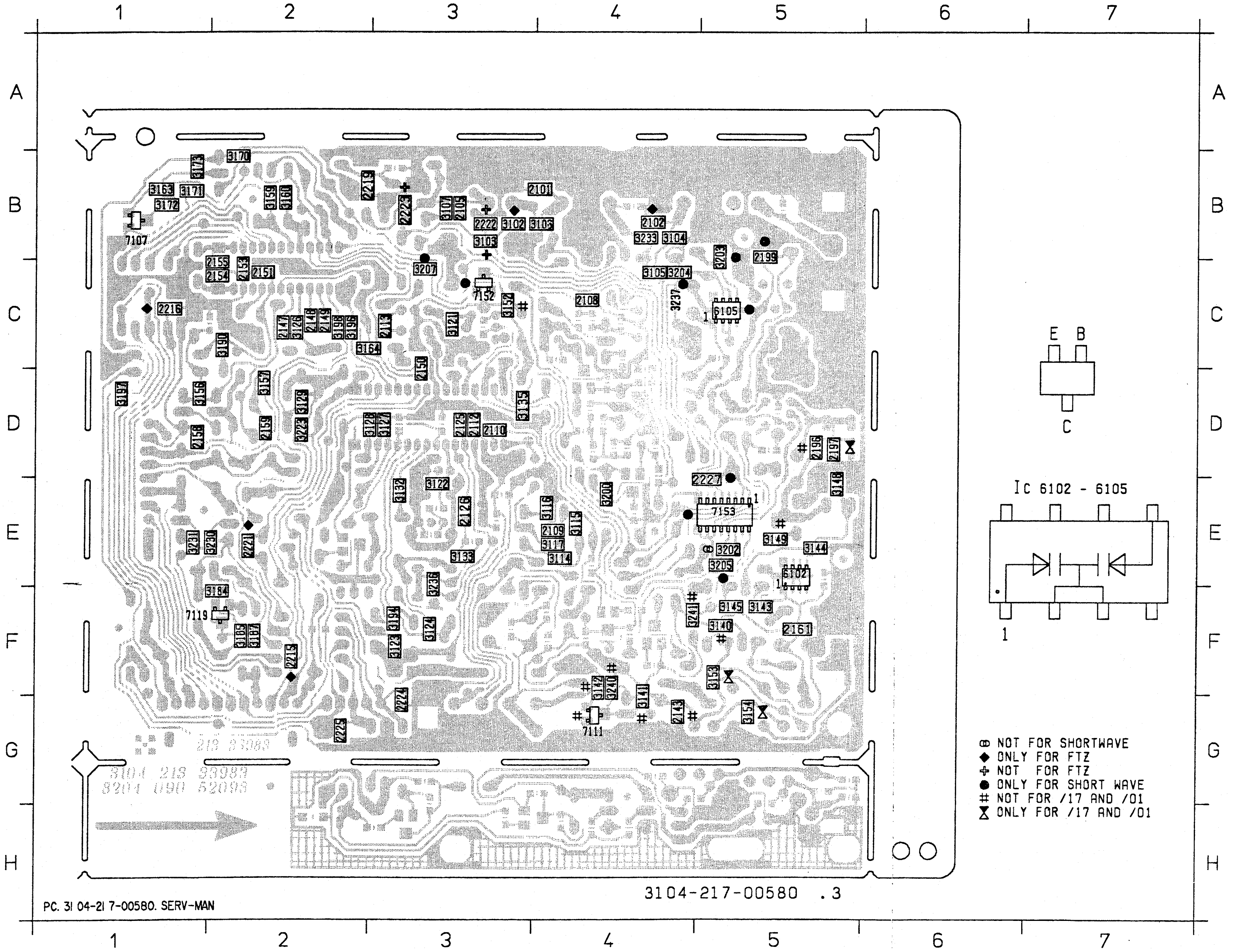

TUNER UNIT
TUNER
1 2 3 4 5 6
A B C D E F G
20=5,5V
23=⊥
3=12,8V
16=FM=3,7V
AM=0V
23=⊥
14=AF-L
15=AF-R
ↀ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
● ONLY FOR SHORT WAVE
# NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01
3104-217-00580 .3
PC. 31 04-21 7-00580. SERV-MAN

NT AND CHIP LAYOUT - For /22 and other versions produced before wk 249.

2142	D2	2201	B2	3146	E2	3225	B5	5113	D3	7105	B4	7157	D5	9119	E2	9137	F4
2144	E1	2210	B3	3147	D2	5101	A4	5114	E3	7106	A5	9100	E5	9120	B3	9138	B4
2145	C1	2211	C2	3150	F3	5103	B3	5122	C2	7108	C5	9101	D1	9122	C3	9139	D4
2146	C1	3100	B3	3151	D2	5104	B3	5123	B1	7109	C5	9104	C2	9123	F3	9140	D4
2152	B5	3101	B3	3155	C5	5105	D4	6101	C5	7110	E2	9106	E2	9124	D3	9141	E4
2156	B5	3108	A4	3158	C5	5106	E4	6109	E5	7112	D1	9108	E2	9125	B4	9142	E4
2160	C5	3113	B3	3162	C5	5107	F1	6121	A4	7113	E3	9109	D2	9128	C3	9144	E4
2162	D2	3118	D3	3165	B5	5108	C1	6122	A4	7114	F2	9111	B2	9130	B4	9146	D4
2163	E2	3120	F4	3166	B5	5109	F2	6123	A5	7115	E2	9113	D2	9132	C4	9147	F5
2165	E5	3125	C4	3167	B5	5110	B4	7101	A4	7116	D3	9115	E2	9133	B4	9149	E5
2198	B2	3131	D4	3183	E5	5111	D4	7103	C3	7120	E5	9116	D3	9134	C4	9150	E5
2200	B2	3134	E3	3186	E5	5112	B5	7104	E4	7150	D5	9117	C3	9136	C4		


2
3
C
4
5
6
NIT
TUNER
1101
4=⊥
5=Varicap
6=12,7V
20=5,5V
23=⊥
3=12,8V
18=FM=3,7V
AM=0V
23=⊥
14=AF-L
15=AF-R
A
B
C
D
E
F
G
6
7
4
3104-217-00580 .3
-MAN
⊕ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
● ONLY FOR SHORT WAVE
# NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01

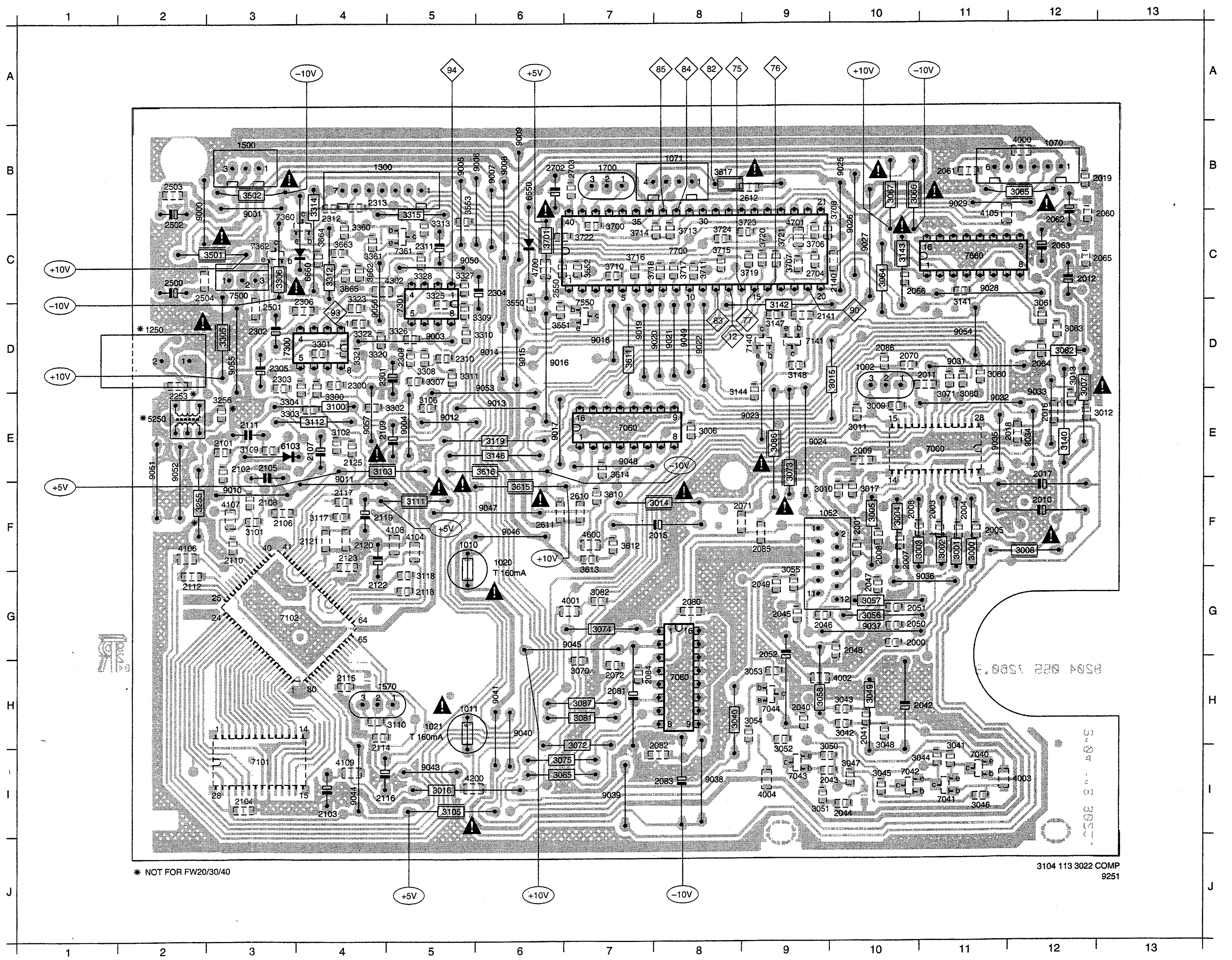
2101	B4	2147	C2	2196	D5	2227	E5	3121	C3	3140	F5	3156	D1	3185	F2	3205	E5	6105	C5
2102	B4	2148	C2	2197	D5	3102	B3	3122	E3	3141	G4	3157	D2	3187	F2	3207	C3	7107	B1
2105	B3	2149	C2	2199	C5	3103	B3	3123	F3	3142	F4	3159	B2	3190	C2	3223	D2	7111	G4
2108	C4	2150	D3	2215	F2	3104	B4	3124	F3	3143	F5	3160	B2	3194	F3	3230	E2	7119	F1
2109	E4	2151	C2	2216	C1	3105	C4	3126	C2	3144	E5	3163	B1	3196	C2	3231	E1	7152	C3
2110	D3	2153	C2	2219	B2	3106	B4	3127	D3	3145	F5	3164	C2	3197	D1	3233	B4	7153	E5
2112	D3	2154	C2	2221	E2	3107	B3	3128	D3	3148	E5	3170	B2	3198	C2	3236	E3		
2113	C3	2155	C2	2222	B3	3114	E4	3129	D2	3149	E5	3171	B1	3200	E4	3237	C4		
2125	D3	2158	D1	2223	B3	3115	E4	3132	E3	3152	C3	3172	B1	3202	E5	3240	F4		
2126	E3	2159	D2	2224	G3	3116	E4	3133	E3	3153	F5	3173	B1	3203	B5	3241	F4		
2143	G4	2161	F5	2225	G2	3117	E4	3135	D3	3154	G5	3184	F2	3204	C4	6102	E5		


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
E B
C
IC 6102 - 6105
1
⊕ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
✣ NOT FOR FTZ
● ONLY FOR SHORT WAVE
# NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01
3104-217-00580 .3
PC. 31 04-21 7-00580. SERV-MAN

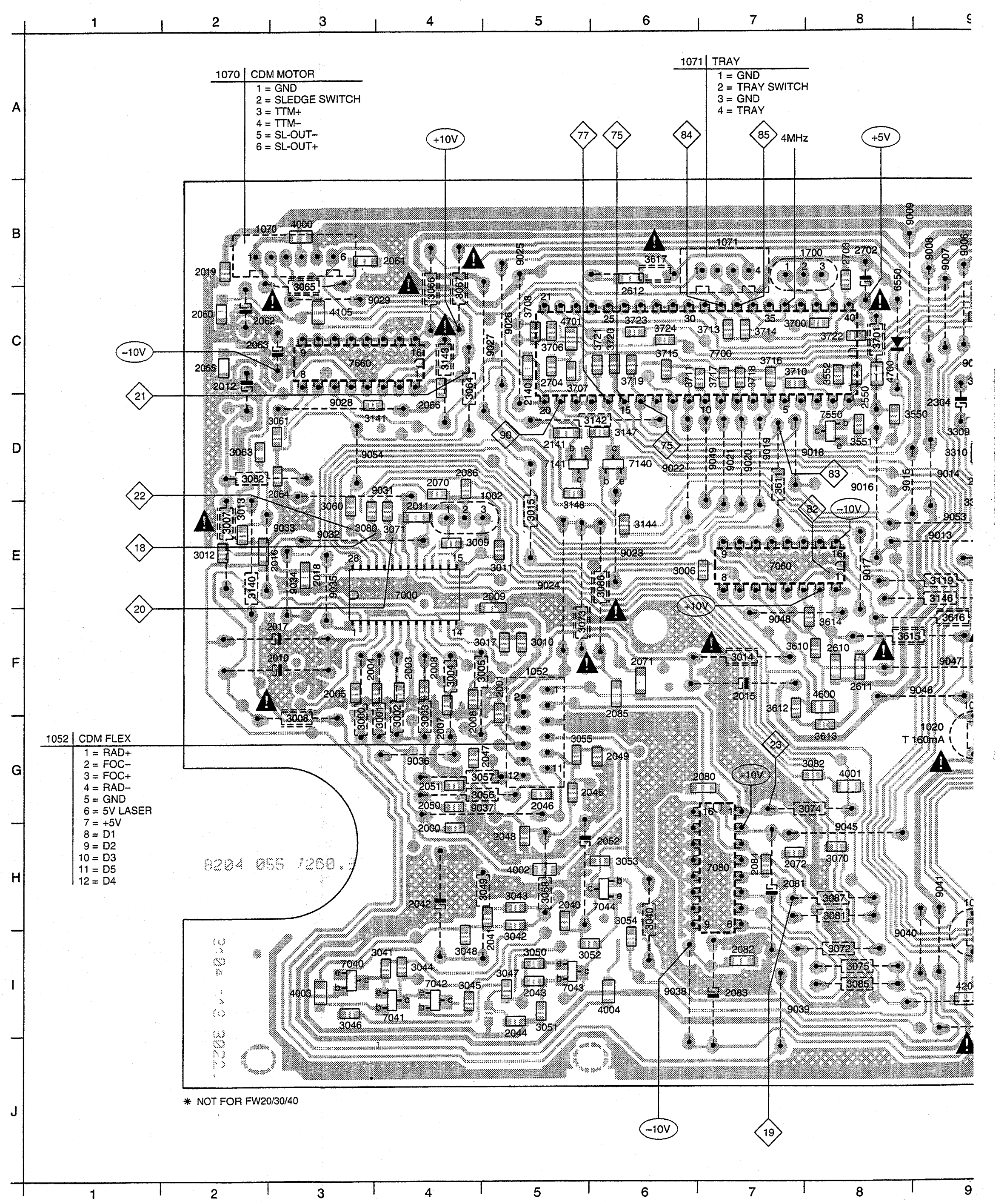
CD COMPONENT AND CHIP LAYOUT

1002	D10	2008	F10	2050	G10	2101	E3	2122	G4	2502	C2	3010	F9	3052	I9	3075	I6	3140	E12	3310	D5	3552	C7	3711	C8	4106	F2	7080	H8	9007	B6	9027	C10	9049	D8
1010	F5	2009	E10	2051	G10	2102	E3	2123	F4	2503	B2	3011	E10	3053	H9	3080	E11	3141	D11	3311	D5	3553	C5	3713	C8	4107	F3	7101	I3	9008	B6	9028	C11	9050	C5
1011	H5	2010	F12	2052	G9	2103	I4	2125	E4	2504	C2	3012	E12	3054	H9	3081	H7	3142	D9	3312	C4	3610	F7	3714	C7	4108	F4	7102	G3	9009	B6	9029	B11	9051	E2
1020	F6	2011	D10	2060	C12	2104	I3	2140	C10	2550	C6	3013	D12	3055	G9	3082	G7	3143	C10	3313	C5	3611	D7	3715	C8	4109	I4	7140	D9	9010	F3	9031	D11	9052	E2
1021	H5	2012	C12	2061	B11	2105	E3	2141	D9	2610	F7	3014	F7	3056	G10	3085	I6	3144	E8	3314	C4	3612	F7	3716	C7	4200	I5	7141	D9	9011	F4	9032	E11	9053	D5
1052	F9	2015	F7	2062	C12	2106	F3	2253	E2	2611	F6	3015	D10	3057	G10	3086	E9	3146	E6	3315	C5	3613	G7	3717	C8	4302	C4	7300	D3	9012	E5	9033	E12	9054	D11
1070	B12	2016	E12	2063	C12	2107	E4	2300	D4	2612	B8	3016	I5	3058	H9	3087	H7	3147	D9	3320	D4	3614	E7	3718	C7	4600	F7	7301	D5	9013	E6	9034	E12	9055	D3
1071	B8	2017	E12	2064	D12	2108	F3	2301	D4	2702	B6	3017	F10	3060	D11	3100	E4	3148	D9	3321	D4	3615	F6	3719	C8	4700	C6	7360	C3	9014	D6	9035	E11	9056	D4
1250	D2	2018	E12	2065	C12	2109	E4	2302	D3	2703	B7	3040	H8	3061	D12	3101	F3	3255	F2	3322	D4	3616	E6	3720	C9	4701	C9	7361	C5	9015	D6	9036	G10	9057	E4
1300	B4	2019	B12	2066	C10	2110	F3	2303	D3	2704	C9	3041	I11	3062	D12	3102	E4	3256	E3	3323	C4	3617	B8	3721	C9	5250	E2	7362	C3	9016	D6	9037	G10		
1500	B3	2040	H9	2070	D10	2111	E3	2304	C6	3000	F11	3042	H10	3063	D12	3103	E4	3300	E4	3325	C5	3662	C4	3722	C7	6103	E3	7500	C3	9017	E6	9038	I8		
1570	H4	2041	H10	2071	F8	2112	G2	2305	D3	3001	F11	3043	H10	3064	C10	3105	I5	3301	D4	3326	D5	3663	C4	3723	C8	6550	B6	7550	D7	9018	D7	9039	I7		
1700	B7	2042	H10	2072	H7	2114	I4	2306	D3	3002	F11	3044	I10	3065	B12	3106	E5	3302	E4	3327	C5	3664	C4	3724	C8	6660	C4	7660	C11	9019	D7	9040	H6		
2000	G10	2043	I9	2080	G8	2115	H4	2309	D5	3003	F11	3045	I10	3066	B10	3109	E3	3303	E3	3328	C5	3665	C4	4000	B12	7000	E11	7700	C8	9020	D8	9041	H6		
2001	F10	2044	I10	2081	H7	2116	I4	2310	D5	3004	F10	3046	I11	3067	B10	3110	H5	3304	E3	3360	C4	3700	C7	4001	G6	7040	I11	9000	C2	9021	D8	9043	I5		
2003	F11	2045	G9	2082	I7	2117	F4	2311	C5	3005	F10	3047	I10	3070	H7	3111	F5	3305	D3	3361	C4	3701	C6	4002	H10	7041	I11	9001	C3	9022	D8	9044	I4		
2004	F11	2046	G9	2083	I8	2118	G5	2312	C4	3006	E8	3048	I10	3071	E11	3112	E4	3306	C3	3501	C2	3706	C9	4003	I12	7042	I10	9003	D5	9023	E8	9045	G6		
2005	F11	2047	G10	2084	H7	2119	F4	2313	B4	3007	E12	3049	H10	3072	I7	3117	F4	3307	D5	3502	B3	3707	C9	4004	I9	7043	I9	9004	E5	9024	E9	9046	F6		
2007	G10	2048	G10	2085	F9	2120	F4	2500	C2	3008	F12	3050	I9	3073	F9	3118	G5	3308	D5	3550	D6	3708	C10	4104	F5	7044	H9	9005	B5	9025	B10	9047	F6		
2008	F10	2049	G9	2086	D10	2121	F4	2501	D3	3009	E10	3051	I9	3074	G7	3119	E6	3309	D5	3551	D6	3710	C7	4105	C11	7060	E7	9006	B6	9026	C10	9048	E7		

1002	E4	2007	G4	2046	G5	2081	H7	2114	I10	2304	D9	2703	B8	3016	I9	3056	G4	3081	H8	3140	E2	3308	E9	3501
1010	F9	2008	F4	2047	G5	2082	I7	2115	H10	2305	D11	2704	C5	3017	F4	3057	G4	3082	G7	3141	D3	3309	D9	3502
1011	H9	2008	G4	2048	H5	2083	I7	2116	I10	2306	D11	3000	G3	3040	I6	3058	H5	3085	I8	3142	D5	3310	D9	3550
1020	G9	2009	E5	2049	G6	2084	H7	2117	F10	2309	D10	3001	G4	3041	I3	3060	E3	3086	E6	3143	C4	3311	E9	3551
1021	I9	2010	F2	2050	G4	2085	G6	2118	G9	2310	D9	3002	G4	3042	I5	3061	D2	3087	H8	3144	E6	3312	D11	3552
1052	F5	2011	E4	2051	G4	2086	D4	2119	F10	2311	C9	3003	G4	3043	H5	3062	D2	3100	E10	3146	E9	3313	C9	3553
1070	B2	2012	C2	2052	H6	2101	E12	2120	F10	2312	C10	3004	F4	3044	I4	3063	D2	3101	F11	3147	D6	3314	C11	3610
1071	B7	2015	F7	2060	C2	2102	F11	2121	F11	2313	C10	3005	F5	3045	I4	3064	D4	3102	E10	3148	E5	3315	C10	3611
1250	D12	2016	E3	2061	B4	2103	I11	2122	G10	2500	D12	3006	E6	3046	I3	3065	C3	3103	F10	3255	F12	3320	D10	3612
1300	B10	2017	F2	2062	C2	2104	I11	2123	G10	2501	D11	3007	E2	3047	I5	3066	C4	3105	I9	3256	E12	3321	D10	3613
1500	B11	2018	E3	2063	C2	2105	F11	2125	F10	2502	C12	3008	G3	3048	I4	3067	C4	3106	E9	3300	E10	3322	D10	3614
1570	H10	2019	B2	2064	D2	2106	F11	2140	D5	2503	B12	3009	E4	3049	H5	3070	H8	3109	E11	3301	D11	3323	D10	3615
1700	B7	2040	H5	2065	C2	2107	E11	2141	D5	2504	D12	3010	F5	3050	I5	3071	E4	3110	H10	3302	E10	3325	D9	3616
2000	H4	2041	I5	2066	D4	2108	F11	2253	E12	2550	D8	3011	E5	3051	I5	3072	I8	3111	F10	3303	E11	3326	D10	3617
2001	F5	2042	H4	2070	D4	2109	E10	2300	E10	2610	F8	3012	E2	3052	I5	3073	F5	3112	E11	3304	E11	3327	C9	3662
2003	F4	2043	I5	2071	F6	2110	G12	2301	E10	2611	F8	3013	E2	3053	H6	3074	G7	3117	F11	3305	D12	3328	C9	3663
2004	F3	2044	J5	2072	H7	2111	E11	2302	D11	2612	C6	3014	F7	3054	H6	3075	I8	3118	G9	3306	D11	3360	C10	3664
2005	F3	2045	G5	2080	G6	2112	G12	2303	E11	2702	B8	3015	E5	3055	G5	3080	E3	3119	E9	3307	E9	3361	C10	3665



1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J
-10V
94
+5V
85 84 82 75 76
+10V
-10V
+10V
-10V
+10V
+5V
*1250
*5250
1500
1300
1700
1071
4000
1070
7660
7060
7000
7102
7101
7080
1052
1010
1020
T 160mA
1011
1021
T 160mA
8204 055 7260.3
+5V
+10V
-10V
* NOT FOR FW20/30/40
3104 113 3022 COMP
9251



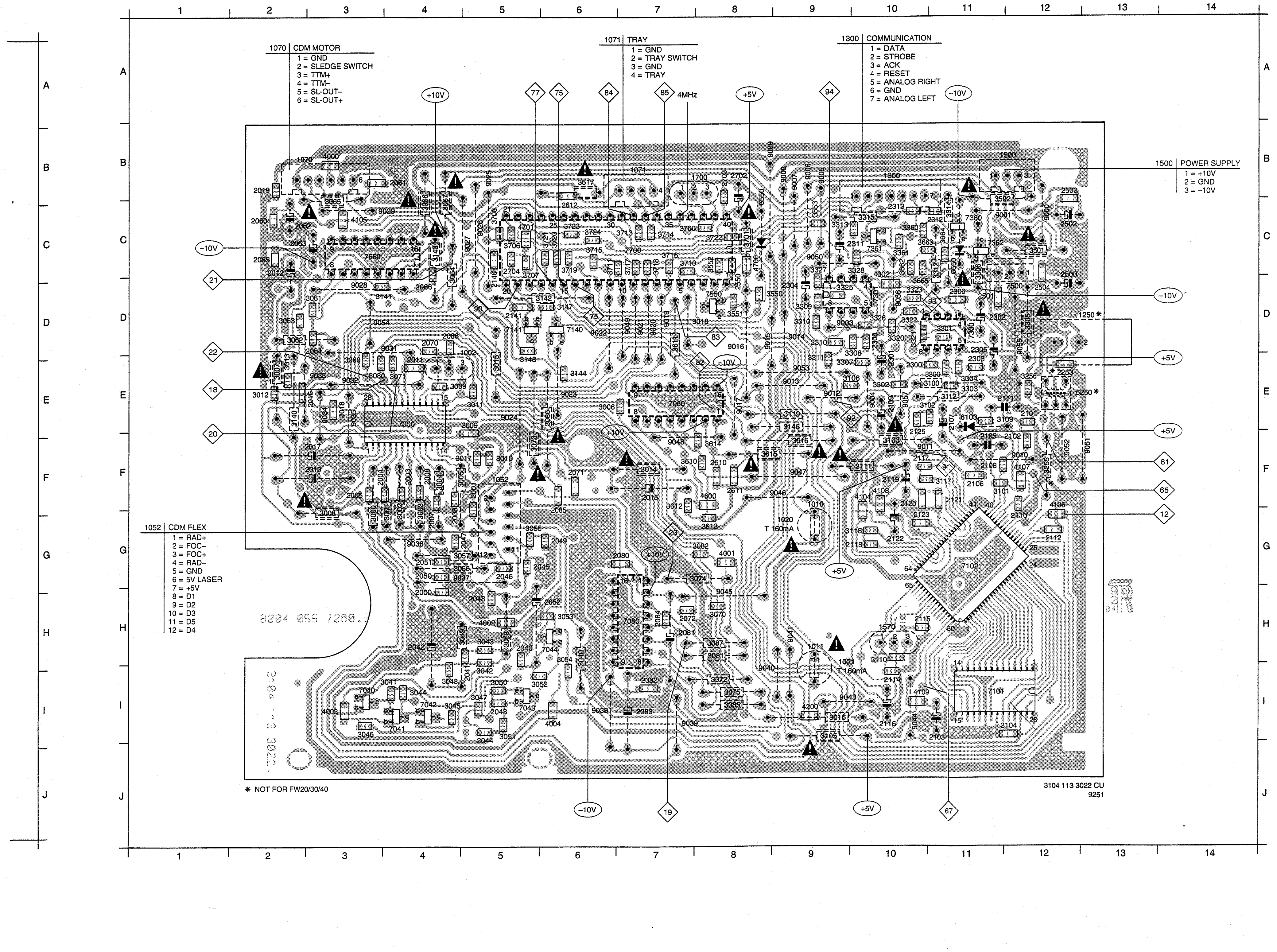
1 2 3 4 5 6 7 8 9
A B C D E F G H I J
1070 CDM MOTOR
1 = GND
2 = SLEDGE SWITCH
3 = TTM+
4 = TTM-
5 = SL-OUT-
6 = SL-OUT+
1071 TRAY
1 = GND
2 = TRAY SWITCH
3 = GND
4 = TRAY
+10V
77
75
84
85
4MHz
+5V
-10V
21
22
18
20
1052 CDM FLEX
1 = RAD+
2 = FOC-
3 = FOC+
4 = RAD-
5 = GND
6 = 5V LASER
7 = +5V
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
1020
T 160mA
8204 055 7260.3
* NOT FOR FW20/30/40
-10V
19

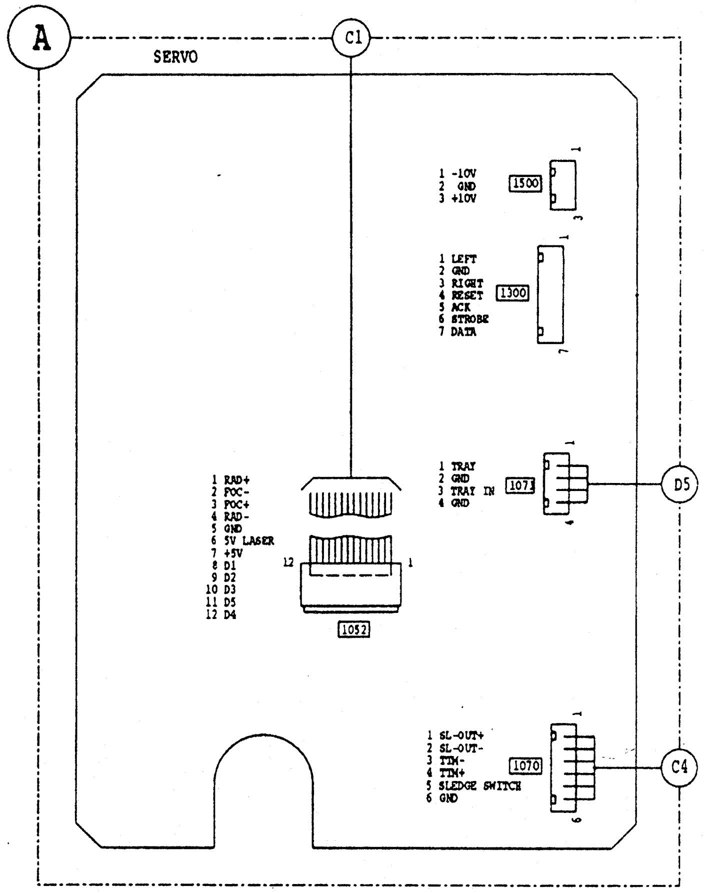
1002	E4	2007	G4	2046	G5	2081	H7	2114	I10
1010	F9	2008	F4	2047	G5	2082	I7	2115	H10
1011	H9	2008	G4	2048	H5	2083	I7	2116	I10
1020	G9	2009	E5	2049	G6	2084	H7	2117	F10
1021	I9	2010	F2	2050	G4	2085	G6	2118	G9
1052	F5	2011	E4	2051	G4	2086	D4	2119	F10
1070	B2	2012	C2	2052	H6	2101	E12	2120	F10
1071	B7	2015	F7	2060	C2	2102	F11	2121	F11
1250	D12	2016	E3	2061	B4	2103	I11	2122	G10
1300	B10	2017	F2	2062	C2	2104	I11	2123	G10
1500	B11	2018	E3	2063	C2	2105	F11	2125	F10
1570	H10	2019	B2	2064	D2	2106	F11	2140	D5
1700	B7	2040	H5	2065	C2	2107	E11	2141	D5
2000	H4	2041	I5	2066	D4	2108	F11	2253	E12
2001	F5	2042	H4	2070	D4	2109	E10	2300	E10
2003	F4	2043	I5	2071	F6	2110	G12	2301	E10
2004	F3	2044	J5	2072	H7	2111	E11	2302	D11
2005	F3	2045	G5	2080	G6	2112	G12	2303	E11

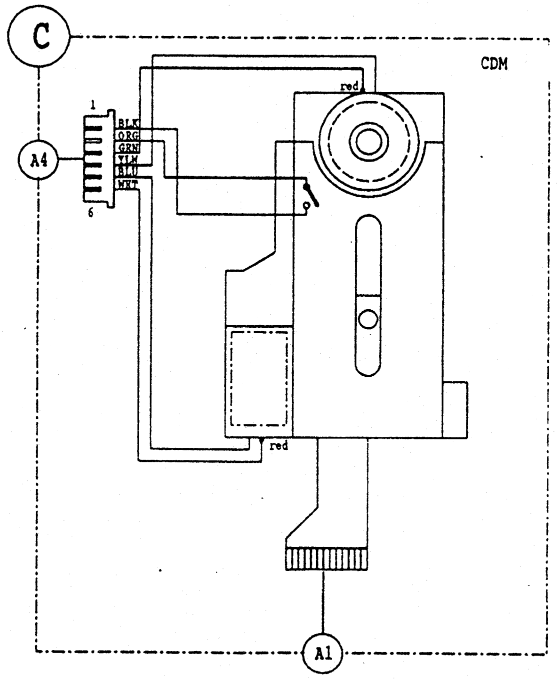
2304	D9	2703	B8	3016	I9	3056	G4	3081	H8
2305	D11	2704	C5	3017	F4	3057	G4	3082	G7
2306	D11	3000	G3	3040	I6	3058	H5	3085	I8
2309	D10	3001	G4	3041	I3	3060	E3	3086	E6
2310	D9	3002	G4	3042	I5	3061	D2	3087	H8
2311	C9	3003	G4	3043	H5	3062	D2	3100	E10
2312	C10	3004	F4	3044	I4	3063	D2	3101	F11
2313	C10	3005	F5	3045	I4	3064	D4	3102	E10
2500	D12	3006	E6	3046	I3	3065	C3	3103	F10
2501	D11	3007	E2	3047	I5	3066	C4	3105	I9
2502	C12	3008	G3	3048	I4	3067	C4	3106	E9
2503	B12	3009	E4	3049	H5	3070	H8	3109	E11
2504	D12	3010	F5	3050	I5	3071	E4	3110	H10
2550	D8	3011	E5	3051	I5	3072	I8	3111	F10
2610	F8	3012	E2	3052	I5	3073	F5	3112	E11
2611	F8	3013	E2	3053	H6	3074	G7	3117	F11
2612	C6	3014	F7	3054	H6	3075	I8	3118	G9
2702	B8	3015	E5	3055	G5	3080	E3	3119	E9

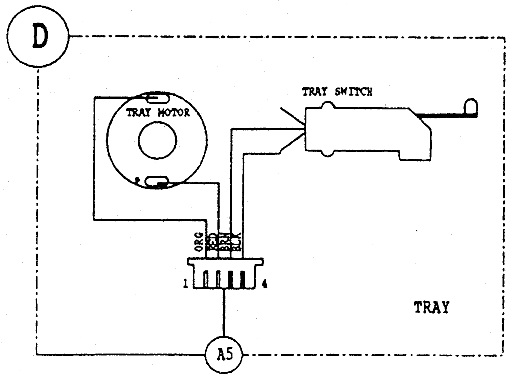
3140	E2	3308	E9	3501	C12	3700	C7	3724	C6
3141	D3	3309	D9	3502	C11	3701	C8	4000	B3
3142	D5	3310	D9	3550	D8	3706	C5	4001	G8
3143	C4	3311	E9	3551	D8	3707	D5	4002	H5
3144	E6	3312	D11	3552	C8	3708	C5	4003	I3
3146	E9	3313	C9	3553	C9	3710	C7	4004	I6
3147	D6	3314	C11	3610	F7	3711	C6	4104	F10
3148	E5	3315	C10	3611	D7	3713	C6	4105	C3
3255	F12	3320	D10	3612	F7	3714	C7	4106	F12
3256	E12	3321	D10	3613	G8	3715	C6	4107	F12
3300	E10	3322	D10	3614	F8	3716	C7	4108	F10
3301	D11	3323	D10	3615	F8	3717	C7	4109	I10
3302	E10	3325	D9	3616	F9	3718	C7	4200	I9
3303	E11	3326	D10	3617	B6	3719	C6	4302	D10
3304	E11	3327	C9	3662	C10	3720	C6	4600	F8
3305	D12	3328	C9	3663	C10	3721	C6	4700	C8
3306	D11	3360	C10	3664	C11	3722	C8	4701	C5
3307	E9	3361	C10	3665	D10	3723	C6	5250	E12

6103	E11	7361	C10	9013	E9	9032	E3	9051	F13
6550	C8	7362	C11	9014	D9	9033	E3	9052	F12
6660	C11	7500	D12	9015	D8	9034	E3	9053	E9
7000	E4	7550	D8	9016	D8	9035	E3	9054	D3
7040	I3	7660	C3	9017	E8	9036	G4	9055	E12
7041	I4	7700	C7	9018	D7	9037	G4	9056	D10
7042	I4	9000	C12	9019	D7	9038	I6	9057	E10
7043	I5	9001	C11	9020	D7	9039	I7		
7044	H6	9003	D9	9021	D7	9040	I8		
7060	E7	9004	E10	9022	D6	9041	H9		
7080	H7	9005	B9	9023	E6	9043	I9		
7101	I11	9006	B9	9024	E5	9044	I10		
7102	G11	9007	B9	9025	B5	9045	H8		
7140	D6	9008	B9	9026	C5	9046	F8		
7141	D5	9009	B8	9027	C5	9047	F9		
7300	D11	9010	F12	9028	D3	9048	F7		
7301	D10	9011	F10	9029	C3	9049	D7		
7360	C11	9012	E9	9031	D3	9050	C9		

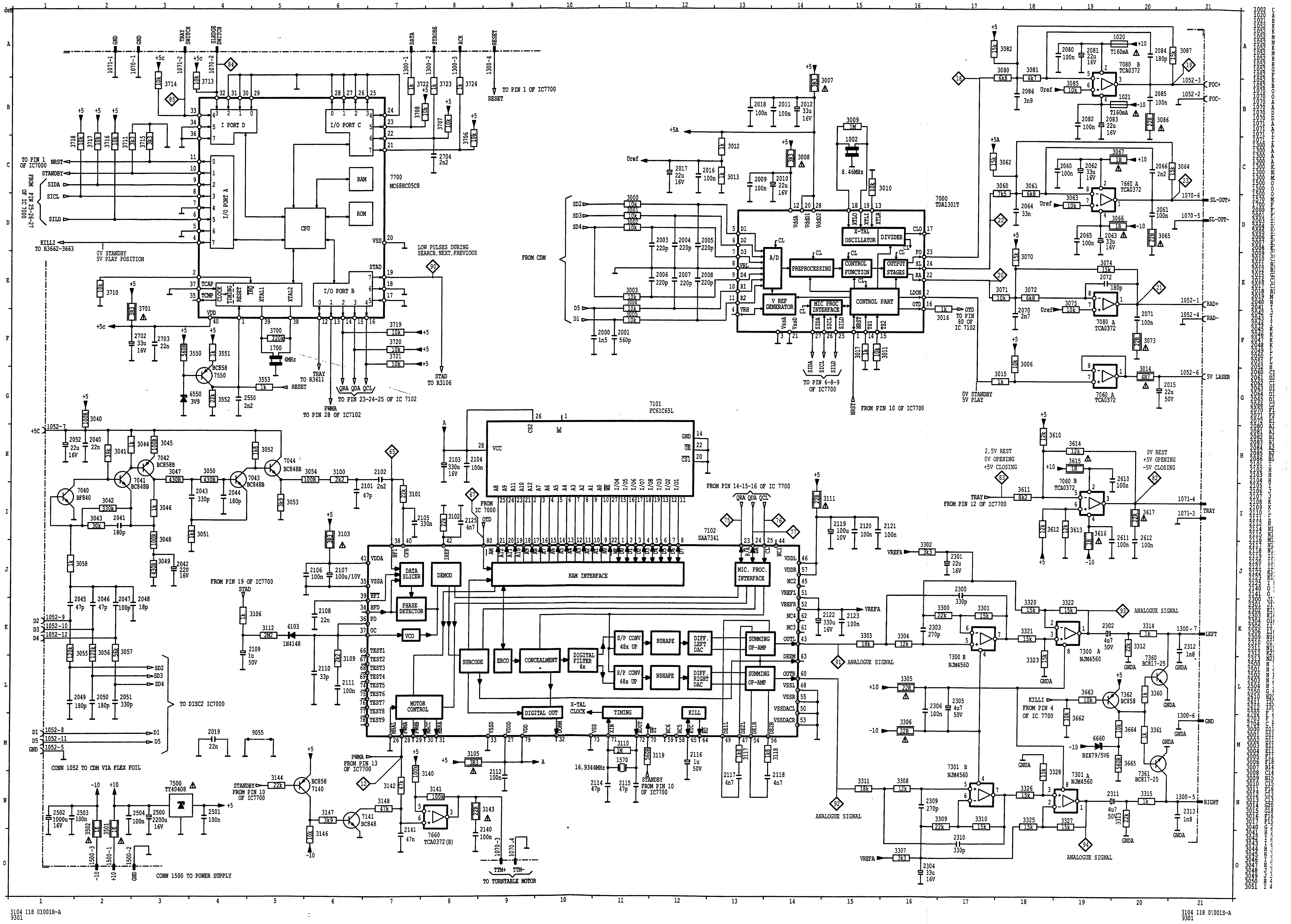

1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
1070 CDM MOTOR
1 = GND
2 = SLEDGE SWITCH
3 = TTM+
4 = TTM–
5 = SL-OUT–
6 = SL-OUT+
1071 TRAY
1 = GND
2 = TRAY SWITCH
3 = GND
4 = TRAY
1300 COMMUNICATION
1 = DATA
2 = STROBE
3 = ACK
4 = RESET
5 = ANALOG RIGHT
6 = GND
7 = ANALOG LEFT
1500 POWER SUPPLY
1 = +10V
2 = GND
3 = –10V
1052 CDM FLEX
1 = RAD+
2 = FOC–
3 = FOC+
4 = RAD–
5 = GND
6 = 5V LASER
7 = +5V
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
+10V
77
75
84
85
4MHz
+5V
94
–10V
1020
T 160mA
1021
T 160mA
8204 055 7280
* NOT FOR FW20/30/40
3104 113 3022 CU
9251


A
C1
SERVO
1 -10V
2 GND
3 +10V
1500
1 LEFT
2 GND
3 RIGHT
4 RESET
5 ACK
6 STROBE
7 DATA
1300
1 TRAY
2 GND
3 TRAY IN
4 GND
1073
D5
1 RAD+
2 FOC-
3 FOC+
4 RAD-
5 GND
6 5V LASER
7 +5V
8 D1
9 D2
10 D3
11 D5
12 D4
1052
1 SL-OUT+
2 SL-OUT-
3 TTM-
4 TTM+
5 SLEDGE SWITCH
6 GND
1070
C4

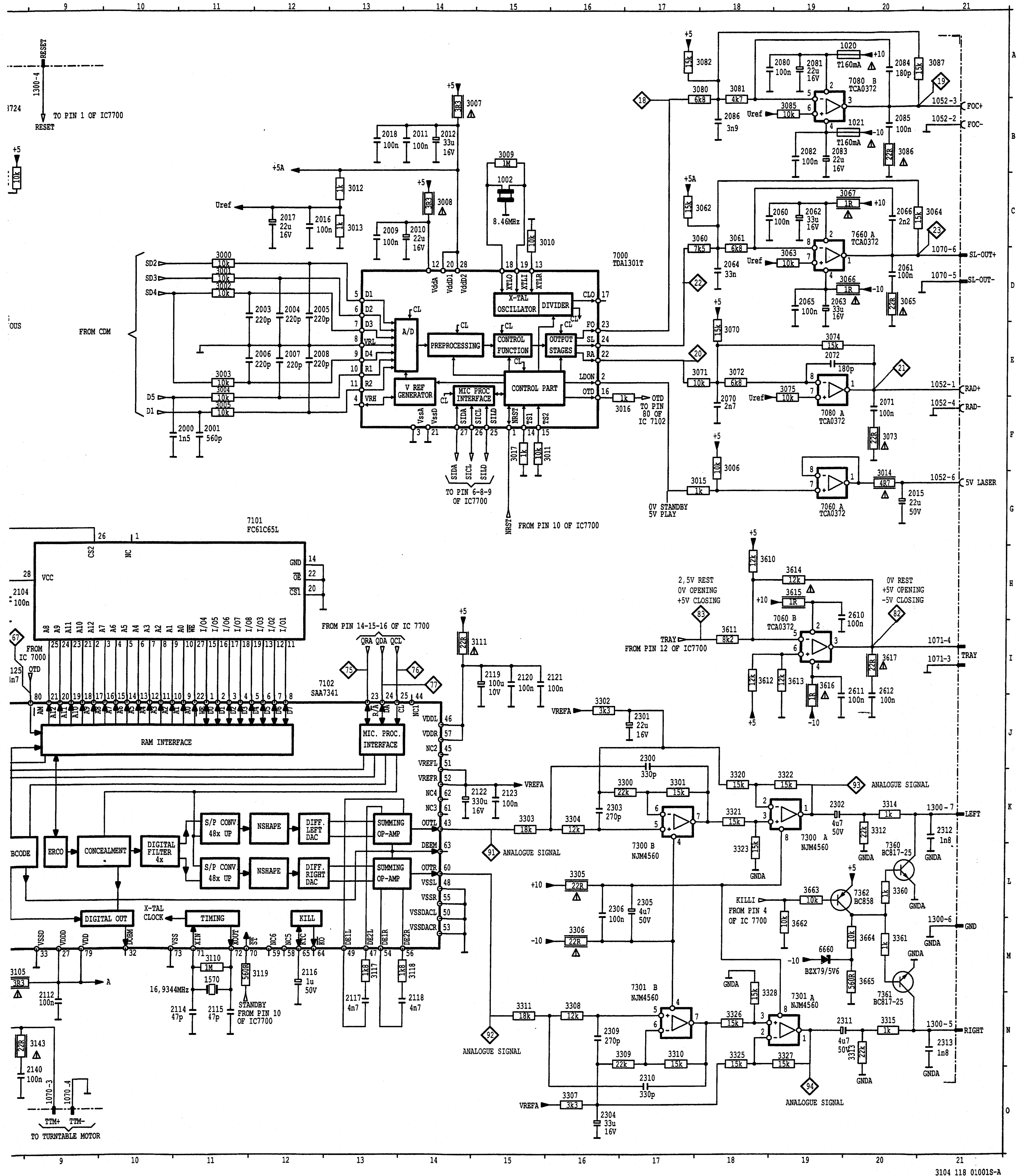

C
CDM
A4
BLK
ORG
GRN
YLW
BLU
WHT
red
red
A1


D
TRAY MOTOR
TRAY SWITCH
TRAY
A5

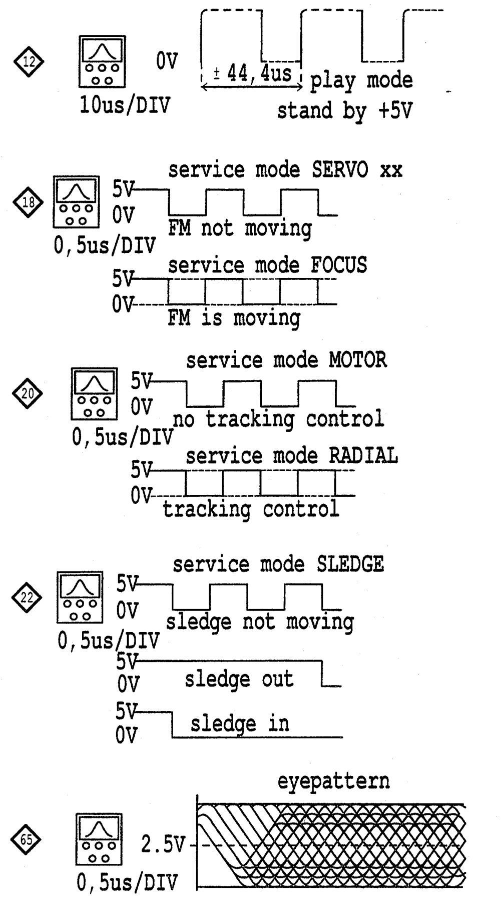
CD CIRCUIT DIAGRAM



7700 MC68HC05C8
I PORT D
I/O PORT C
I/O PORT A
I/O PORT B
CPU
RAM
ROM
TIMING
CLOCK
RESET
IRQ
XTAL1
XTAL2
TCAP
TCMP
VDD
VSS
STAD
DATA
STROBE
ACK
RESET
GND
TRAY SWITCH
SLEDGE SWITCH
TO PIN 1 OF IC7700
TO PIN 1 OF IC7000
NRST
STANDBY
SIDA
SICL
SILD
FROM PIN 25-26-27 OF IC 7000
KILLI TO R3662-3663
0V STANDBY 5V PLAY POSITION
LOW PULSES DURING SEARCH,NEXT,PREVIOUS
TRAY TO R3611
QRA QDA QCL
TO PIN 23-24-25 OF IC 7102
PWMA TO PIN 28 OF IC7102
STAD TO R3106
7000 TDA1301T
A/D
PREPROCESSING
CONTROL FUNCTION
OUTPUT STAGES
X-TAL OSCILLATOR
DIVIDER
CONTROL PART
V REF GENERATOR
MIC PROC INTERFACE
8.46MHz
FROM CDM
TO PIN 6-8-9 OF IC7700
FROM PIN 10 OF IC7700
TO PIN 80 OF IC 7102
7080 B TCA0372
7660 A TCA0372
7080 A TCA0372
7060 A TCA0372
7060 B TCA0372
FOC+
FOC-
SL-OUT+
SL-OUT-
RAD+
RAD-
5V LASER
0V STANDBY 5V PLAY
2,5V REST 0V OPENING +5V CLOSING
0V REST +5V OPENING -5V CLOSING
TRAY FROM PIN 12 OF IC7700
TRAY
7101 FC61C65L
7102 SAA7341
DATA SLICER
DEMOD
PHASE DETECTOR
VCO
RAM INTERFACE
MIC. PROC. INTERFACE
SUBCODE
ERCO
CONCEALMENT
DIGITAL FILTER 4x
S/P CONV 48x UP
NSHAPE
DIFF. LEFT DAC
DIFF. RIGHT DAC
SUMMING OP-AMP
MOTOR CONTROL
DIGITAL OUT
X-TAL CLOCK
TIMING
KILL
16,9344MHz
FROM PIN 14-15-16 OF IC 7700
FROM PIN 19 OF IC7700
FROM IC 7000 OTD
PWMA FROM PIN 13 OF IC7700
STANDBY FROM PIN 10 OF IC7700
7040 BF840
7041 BC848B
7042 BC858B
7043 BC848B
7044 BC848B
7550 BC858
6550 3V9
6103 1N4148
7140 BC858
7141 BC848
7660 TCA0372 (B)
7500 TY40408
7300 A NJM4560
7300 B NJM4560
7301 A NJM4560
7301 B NJM4560
7360 BC817-25
7361 BC817-25
7362 BC858
6660 BZX79/5V6
ANALOGUE SIGNAL
LEFT
RIGHT
GND
VREFA
KILLI FROM PIN 4 OF IC 7000
TO DISC2 IC7000
CONN 1052 TO CDM VIA FLEX FOIL
CONN 1500 TO POWER SUPPLY
TO TURNTABLE MOTOR
TTM+ TTM-
3104 118 01001R-A 9301
3104 118 01001S-A 9301


RESET
TO PIN 1 OF IC7700
FROM CDM
SD2
SD3
SD4
D5
D1
7000
TDA1301T
A/D
PREPROCESSING
CONTROL FUNCTION
OUTPUT STAGES
X-TAL OSCILLATOR
DIVIDER
V REF GENERATOR
MIC PROC INTERFACE
CONTROL PART
8.46MHz
TO PIN 6-8-9 OF IC7700
FROM PIN 10 OF IC7700
TO PIN 80 OF IC 7102
0V STANDBY
5V PLAY
7080 B
TCA0372
7660 A
TCA0372
7080 A
TCA0372
7060 A
TCA0372
7060 B
TCA0372
FOC+
FOC-
SL-OUT+
SL-OUT-
RAD+
RAD-
5V LASER
2,5V REST
0V OPENING
+5V CLOSING
0V REST
+5V OPENING
-5V CLOSING
TRAY
FROM PIN 12 OF IC7700
7101
FC61C65L
FROM PIN 14-15-16 OF IC 7700
FROM IC 7000
7102
SAA7341
RAM INTERFACE
MIC. PROC. INTERFACE
BCODE
ERCO
CONCEALMENT
DIGITAL FILTER 4x
S/P CONV 48x UP
NSHAPE
DIFF. LEFT DAC
DIFF. RIGHT DAC
SUMMING OP-AMP
DIGITAL OUT
X-TAL CLOCK
TIMING
KILL
16,9344MHz
STANDBY FROM PIN 10 OF IC7700
VREFA
ANALOGUE SIGNAL
7300 B
NJM4560
7300 A
NJM4560
7301 B
NJM4560
7301 A
NJM4560
7360
BC817-25
7361
BC817-25
7362
BC858
KILLI
FROM PIN 4 OF IC 7700
BZX79/5V6
LEFT
RIGHT
GND
GNDA
TTM+
TTM-
TO TURNTABLE MOTOR
3104 118 01001S-A
9301

1002	C15	3052	H 5
1020	A20	3053	I 5
1021	B20	3054	H 6
1052	K 1	3055	L 2
1052	K 1	3056	K 2
1052	M 1	3057	K 2
1052	M 1	3058	J 2
1052	K 1	3060	C18
1052	M 1	3061	C18
1052	H 1	3062	C17
1052	B21	3063	D19
1052	G21	3064	C21
1052	F21	3065	D20
1052	E21	3066	D19
1052	B21	3067	C19
1070	O 9	3070	E18
1070	O 9	3071	E18
1070	A 4	3072	E18
1070	A 2	3073	F20
1070	D21	3074	E19
1070	D21	3075	E19
1071	A 3	3080	A18
1071	A 2	3081	A18
1071	I21	3082	A17
1071	I21	3085	B19
1300	A 9	3086	B20
1300	A 8	3087	A21
1300	A 8	3100	H 6
1300	A 7	3101	I 7
1300	K21	3102	I 8
1300	N21	3103	I 6
1300	M21	3105	M 8
1500	O 2	3106	K 5
1500	O 2	3109	L 6
1500	O 2	3110	M11
1570	M11	3111	I14
1700	F 5	3112	K 5
2000	F11	3117	M13
2001	F11	3118	M14
2003	D12	3119	M12
2004	D12	3140	N 8
2005	D12	3141	N 8
2006	E12	3142	N 7
2007	E12	3143	N 9
2008	E12	3144	N 5
2009	C13	3146	O 6
2010	C14	3147	N 6
2011	B14	3148	N 7
2012	B14	3300	K16
2015	G20	3301	K17
2016	C12	3302	J16
2017	C12	3303	K15
2018	B13	3304	K16
2019	M 4	3305	L16
2040	H 2	3306	M16
2041	I 2	3307	O16
2042	J 3	3308	N16
2043	I 4	3309	N16
2044	I 4	3310	N17
2045	K 1	3311	N15
2046	K 2	3312	K20
2047	K 2	3313	N20
2048	K 3	3314	K20
2049	L 1	3315	N20
2050	L 2	3320	K18
2051	L 2	3321	K18
2052	H 1	3322	K19
2060	C18	3323	L18
2061	D20	3325	N18
2062	C19	3326	N18
2063	D19	3327	N19
2064	D18	3328	M18
2065	D19	3360	L20
2066	C20	3361	M20
2070	F18	3501	O 2
2071	F20	3502	O 2
2072	E19	3550	F 3
2080	A19	3551	F 4
2081	A19	3552	G 4
2082	B19	3553	G 5
2083	B19	3610	H18
2084	A20	3611	I18
2085	B20	3612	I18
2086	B18	3613	I19
2101	I 6	3614	H19
2102	H 7	3615	H19
2103	H 8	3616	I19
2104	H 8	3617	I20
2105	I 7	3662	M19
2106	J 6	3663	L19
2107	J 6	3664	M20
2108	K 6	3665	M20
2109	K 5	3700	F 5
2110	L 6	3701	F 3
2111	L 6	3706	C 8
2112	N 9	3707	B 8
2114	N11	3708	B 7
2115	N11	3710	E 2
2116	M12	3711	C 2
2117	N13	3713	B 4
2118	N14	3714	B 3
2119	I15	3715	C 3
2120	I15	3716	C 2
2121	I15	3717	C 2
2122	K14	3718	C 1
2123	K15	3719	F 7
2125	I 8	3720	F 7
2140	O 9	3721	F 7
2141	O 7	3722	B 7
2300	J17	3723	B 8
2301	J17	3724	B 8
2302	K19	6103	K 5
2303	K16	6550	G 4
2304	O16	6660	M19
2305	L17	7000	D16
2306	L16	7040	I 2
2309	N16	7041	I 2
2310	O17	7042	H 3
2311	N19	7043	H 4
2312	K21	7044	H 5
2313	N21	7060	I19
2500	N 3	7060	G19
2501	N 4	7080	F19
2502	N 1	7080	A20
2503	N 2	7101	G11
2504	N 3	7102	I12
2550	G 4	7140	N 6
2610	H20	7141	N 6
2611	I20	7300	L17
2612	I20	7300	K19
2702	F 2	7301	M17
2703	F 3	7301	N19
2704	C 8	7360	L20
3000	D11	7361	M20
3001	D11	7362	L20
3002	D11	7500	N 3
3003	E11	7550	G 4
3004	E11	7660	O 8
3005	F11	7660	C20
3006	F18	7700	C 7
3007	B14	9055	M 5
3008	C14		
3009	B15		
3010	C15		
3011	F16		
3012	C13		
3013	C13		
3014	G20		
3015	G18		
3016	F16		
3017	F15		
3040	G 2		
3041	H 2		
3042	I 2		
3043	I 2		
3044	H 3		
3045	H 3		
3046	I 3		
3047	H 3		
3048	J 3		
3049	J 3		
3050	H 4		
3051	I 4		

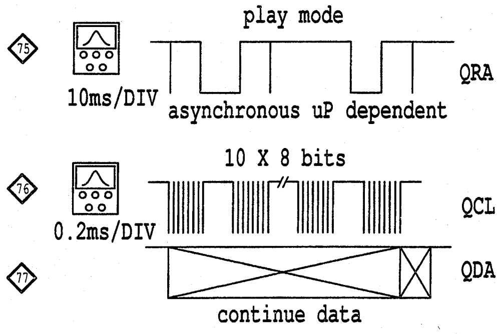

12
0V
44,4us
play mode
stand by +5V
10us/DIV
18
5V
0V
0,5us/DIV
service mode SERVO xx
FM not moving
service mode FOCUS
FM is moving
20
0,5us/DIV
service mode MOTOR
no tracking control
service mode RADIAL
tracking control
22
0,5us/DIV
service mode SLEDGE
sledge not moving
sledge out
sledge in
65
2.5V
0,5us/DIV
eyepattern

19 ACTIVITY DURING PLAY

21 ACTIVITY DURING PLAY

23 SERVICE POSITION SLEDGE
SL-OUT -2,6V
SL-IN +2,6V

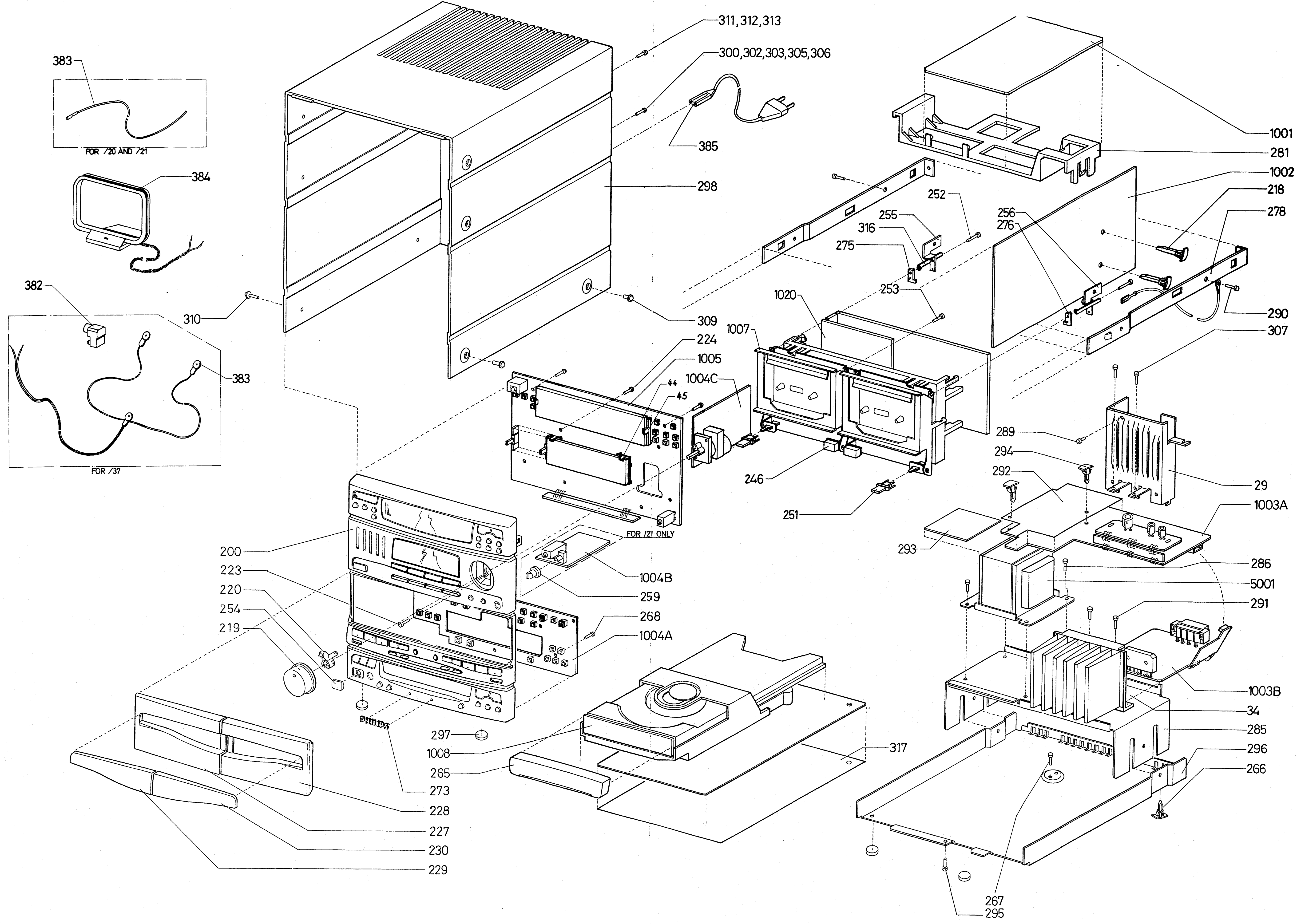
67 SERVICE POSITION SLEDGE,FOCUS,MOTOR: 0V
SERVICE POSITION RADIAL: 5V


75
play mode
10ms/DIV
asynchronous uP dependent
QRA
76
10 X 8 bits
0.2ms/DIV
QCL
77
QDA
continue data

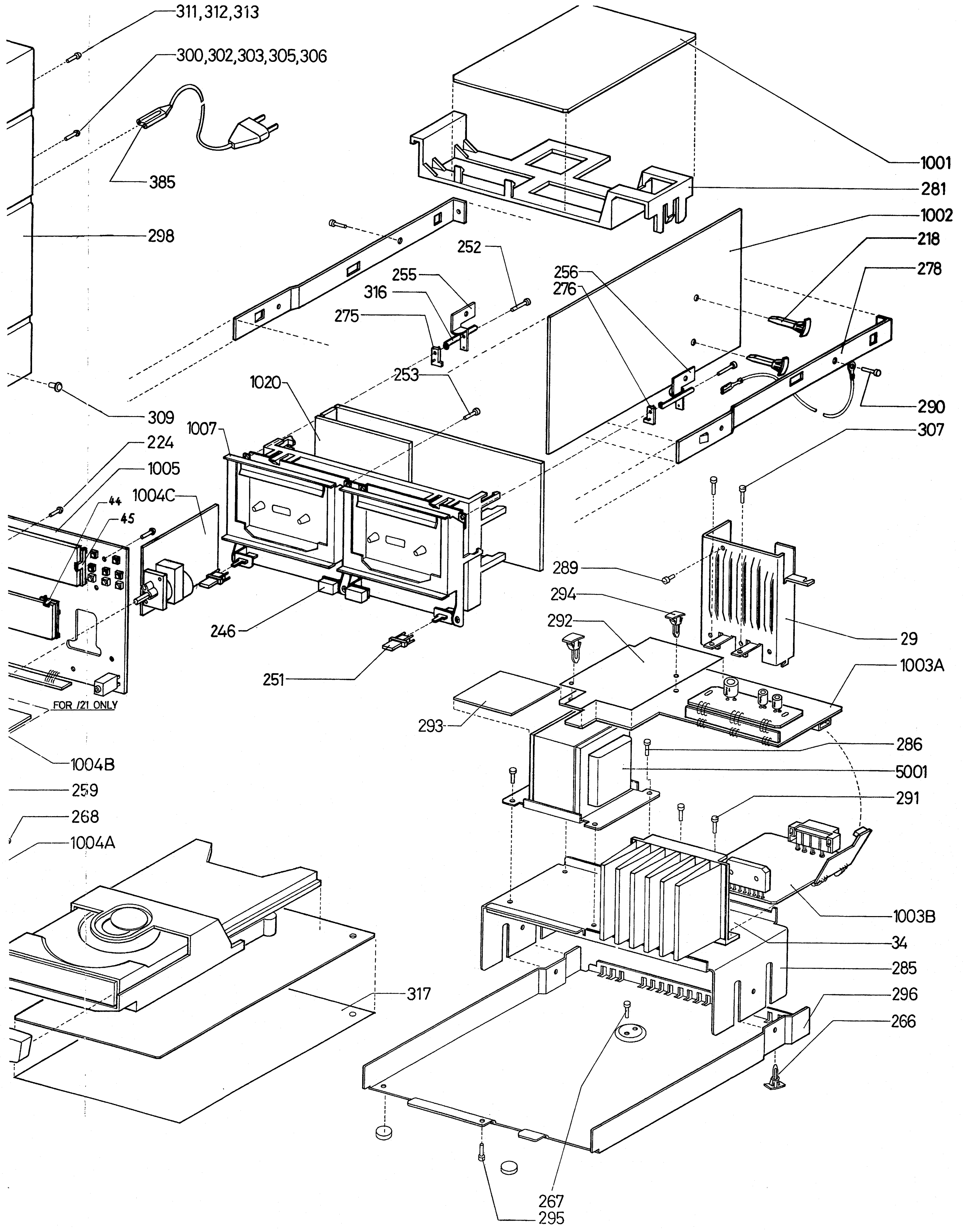
84 SERVICE POSITION SLEDGE
0V REST POSITION
+5V WHEN SLEDGE IS MOVING

85 +5V REST POSITION OF TRAY
0V WHEN OPENING OR CLOSING

CENTRE UNIT EXPLODED VIEW


383
FOR /20 AND /21
384
382
383
FOR /37
310
311,312,313
300,302,303,305,306
385
298
309
224
1005
44
45
1004C
1007
1020
1001
281
1002
218
278
252
255
316
275
253
256
276
290
307
246
251
289
294
29
292
1003A
293
286
5001
291
1003B
34
285
296
266
267
295
FOR /21 ONLY
1004B
259
268
1004A
200
223
220
254
219
297
1008
265
317
273
228
227
230
229
PHILIPS

Note :


311,312,313
300,302,303,305,306
385
298
1001
281
1002
218
278
252
255
316
275
256
276
253
1020
290
307
309
224
1007
1005
44
45
1004C
289
294
29
292
246
251
1003A
FOR /21 ONLY
293
286
5001
1004B
259
291
268
1004A
1003B
34
285
296
317
266
267
295

CENTRE UNIT

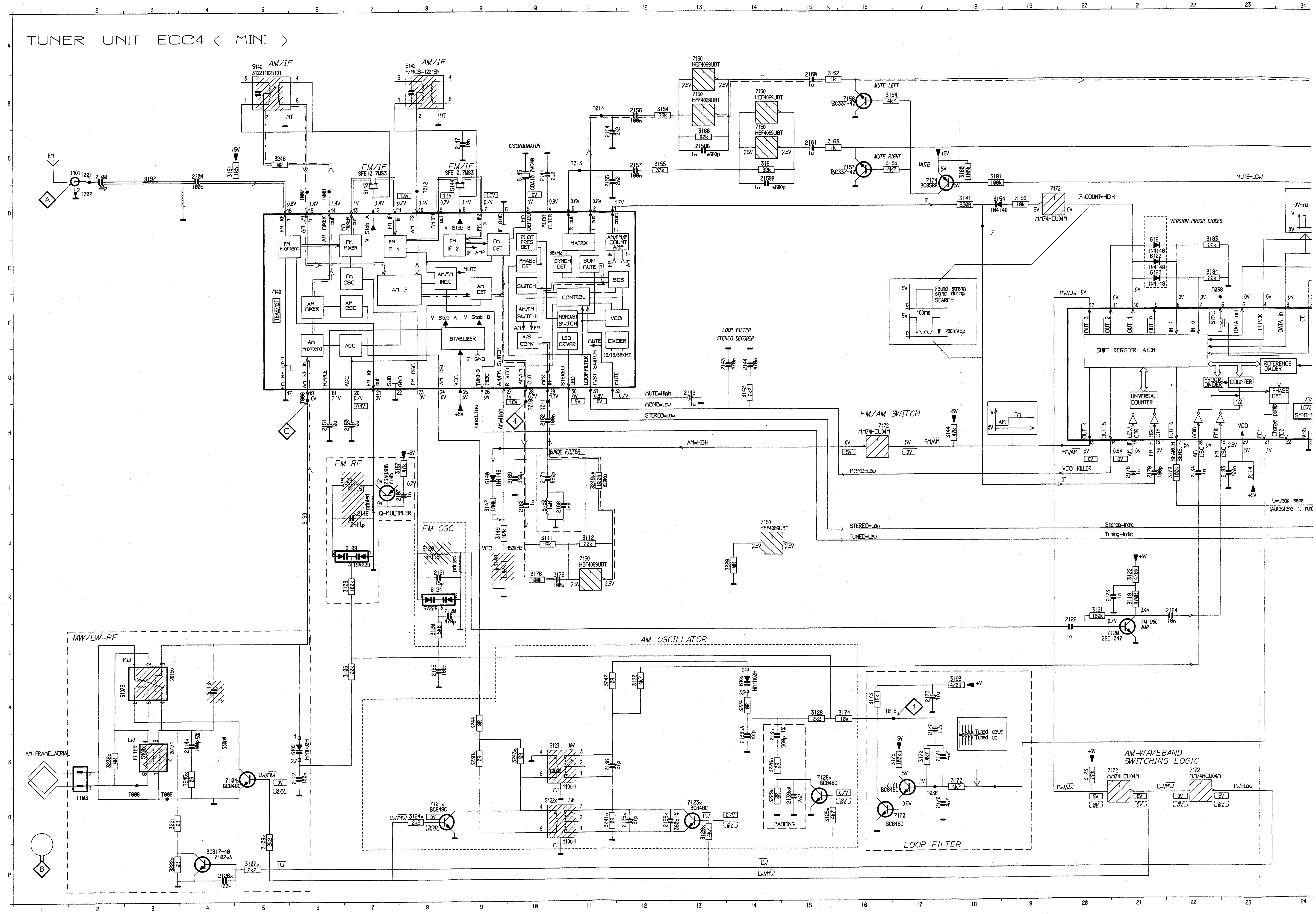
44		4822 466 93152
45		4822 466 93151
200		4822 426 51634 -/21/34
200		4822 426 51633
218		4822 466 93147
219		4822 413 51449
220		4822 466 70739
227		4822 443 63907
228		4822 443 63908
229		4822 450 62063
230		4822 450 62064
251		4822 410 62042
259		4822 413 41724 -/21/34
265		4822 444 60914 -/21/34
265		4822 444 60915
266		4822 466 93148
273		4822 459 11126 -/37
273		4822 459 11086
294		4822 466 93148
297		4822 462 40683
298		4822 426 20239
298		4822 426 20238 -/21/34
382		4822 264 30265 -/37
383		4822 320 11094 -/37
384		4822 158 60622
385	⚠	4822 321 10776 -/22
385	⚠	4822 321 10918 -/25
385	⚠	4822 321 10831 -/20/21/34
385	⚠	4822 321 10883 -/37
385	⚠	4822 321 10954 -/30

Note : Only the mentioned parts are normal service parts.

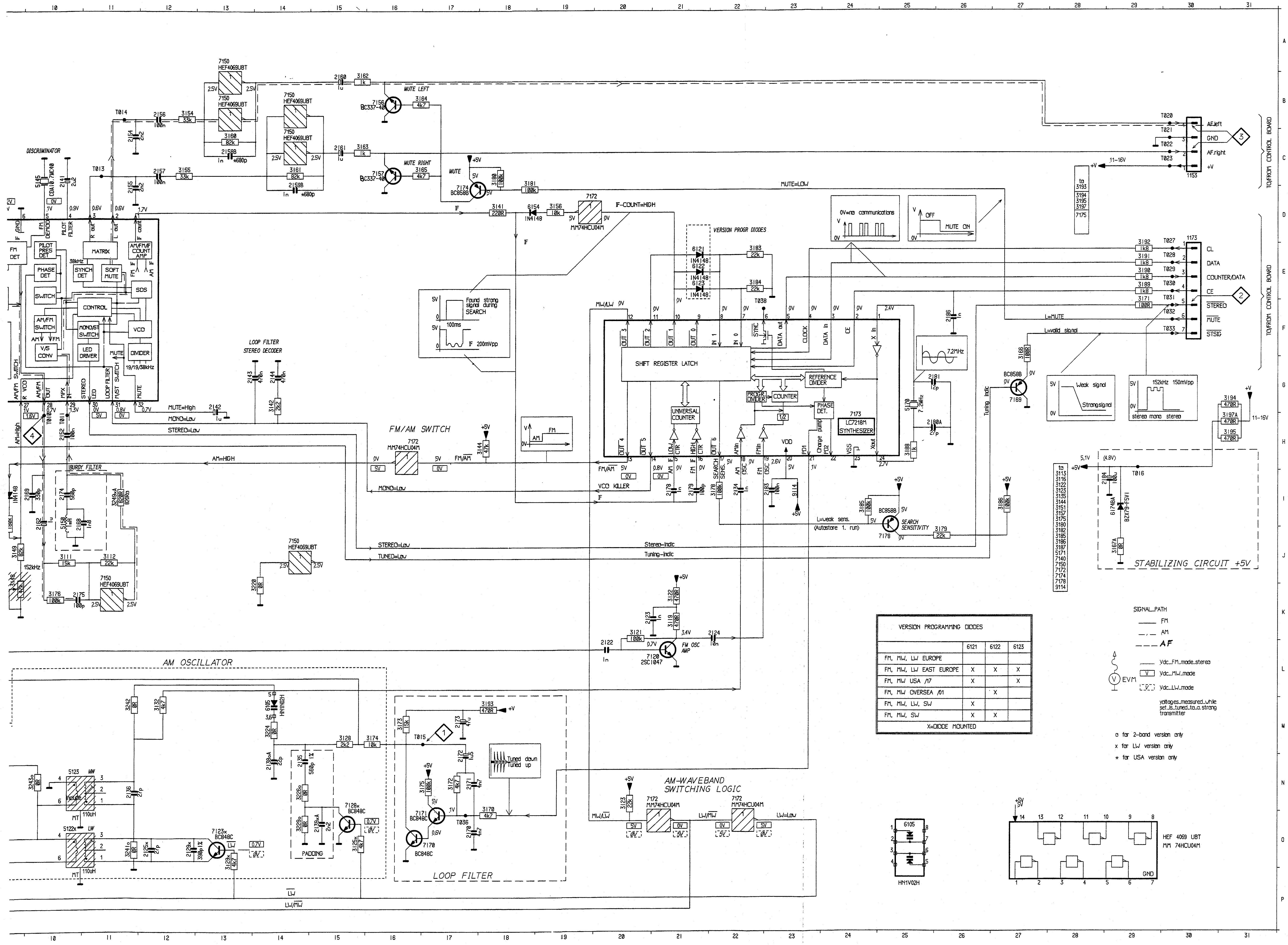
LISTS OF SCREWS

223	M3 X 6
224	D3 X 8
252	D3 X 16
253	D3 X 12
267	M3 X 6
268	D3 X 8
286	D3 X 10
289	D2.9 X 9.5
290	M3 X 6
291	M3 X 10
295	M3 X 6
300	D3 X 12
302	D3 X 12
303	D3 X 12
305	D3 X 12
306	D3 X 12
307	D3 X 8
309	D3 X 10
310	D3 X 10
311	M3 X 10
312	M3 X 10
313	M3 X 10

ECO4 CIRCUIT DIAGRAM - For all versions produced from wk 249 onwards except /22.


TUNER UNIT ECO4 (MINI)
AM/IF
5140 312211821101
5142 F7MCS-12216N
FM/IF
SFE10.7MS3
DISCRIMINATOR
5145 CDA10.7MC40
7140 TEA5712T
FM Frontend
FM MIXER
FM IF 1
FM IF 2
FM DET
PILOT PRES DET
MATRIX
AM/FM/IF COUNT AMP
FM OSC
AM IF
AM/FM INDIC
AM DET
PHASE DET
SYNCH DET
SOFT MUTE
SDS
AM MIXER
AM OSC
SWITCH
CONTROL
AM/FM SWITCH
MONO/ST SWITCH
VCO
AM Frontend
AGC
STABILIZER
V/S CONV
LED DRIVER
DIVIDER 19/19/38kHz
7150 HEF4069UBT
MUTE LEFT
MUTE RIGHT
MUTE
BC337-40
BC858B
MUTE=LOW
IF-COUNT=HIGH
7172 MM74HCU04M
VERSION PROGR DIODES
6121 IN4148
6122 IN4148
6123 IN4148
Found strong signal during SEARCH
100ms
IF 200mVpp
LOOP FILTER STEREO DECODER
SHIFT REGISTER LATCH
REFERENCE DIVIDER
PROGR DIVIDER
COUNTER
PHASE DET.
UNIVERSAL COUNTER
FM/AM SWITCH
AM=HIGH
MONO=Low
STEREO=Low
TUNED=Low
MUTE=High
FM-RF
Q-MULTIPLIER
FM-OSC
BURDY FILTER
VCO
152kHz
VCO KILLER
Stereo-Indic
Tuning-Indic
L=weak sens. (Autostore 1. run)
FM OSC AMP
7120 2SC1047
MW/LW-RF
AM-FRAME_AERIAL
AM OSCILLATOR
PADDING
LOOP FILTER
Tuned down
Tuned up
AM-WAVEBAND SWITCHING LOGIC
BC817-40 7102xA
BC848C
LW/MW

wards except /22.


DISCRIMINATOR
FM DET
PILOT PRES DET
MATRIX
AM/FM/IF COUNT AMP
PHASE DET
SYNCH DET
SOFT MUTE
SWITCH
SDS
CONTROL
AM/FM SWITCH
MONO/ST SWITCH
VCO
V/S CONV
LED DRIVER
DIVIDER
19/19/38kHz
LOOP FILTER STEREO DECODER
MUTE LEFT
MUTE RIGHT
MUTE
BC337-40
BC858B
HEF4069UBT
MM74HCU04M
IF-COUNT=HIGH
MUTE=HIGH
MONO=Low
STEREO=Low
TUNED=Low
AM=HIGH
BURDY FILTER
FM/AM SWITCH
VCO KILLER
VERSION PROGR DIODES
1N4148
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
PROGR DIVIDER
COUNTER
REFERENCE DIVIDER
PHASE DET.
LC7218M SYNTHESIZER
OUT 3
OUT 2
OUT 1
OUT 0
IN 1
IN 0
SYNC
DATA out
CLOCK
DATA in
CE
X in
OUT 4
OUT 5
LOW CTR
HIGH CTR
OUT 6
SEARCH SENS
AM in
FM in
VDD
Charge pump PD2
PD1
VSS
Xout
0V=no communications
OFF
MUTE ON
Found strong signal during SEARCH
100ms
IF 200mVpp
7.2MHz
Weak signal
Strongsignal
152kHz 150mVpp
stereo mono stereo
L=MUTE
L=valid signal
L=weak sens. (Autostore 1. run)
SEARCH SENSITIVITY
Stereo-Indic
Tuning-Indic
TO/FROM CONTROL BOARD
AF.left
GND
AF.right
+V
11-16V
CL
DATA
COUNTER/DATA
CE
STEREO
MUTE
STSIG
STABILIZING CIRCUIT +5V
BZX79-F5V1
FM OSC AMP
2SC1047
AM OSCILLATOR
MW
LW
110uH
BC848C
PADDING
LOOP FILTER
Tuned down
Tuned up
AM-WAVEBAND SWITCHING LOGIC
MW/LW
LW/MW
LW=Low
HN1V02H
HEF 4069 UBT
MM 74HCU04M
GND

VERSION PROGRAMMING DIODES	6121	6122	6123
FM, MW, LW EUROPE			
FM, MW, LW EAST EUROPE	X	X	X
FM, MW USA /17	X		X
FM, MW OVERSEA /01		X	
FM, MW, LW, SW	X		
FM, MW, SW	X	X	
X=DIODE MOUNTED			

SIGNAL_PATH
FM
AM
AF

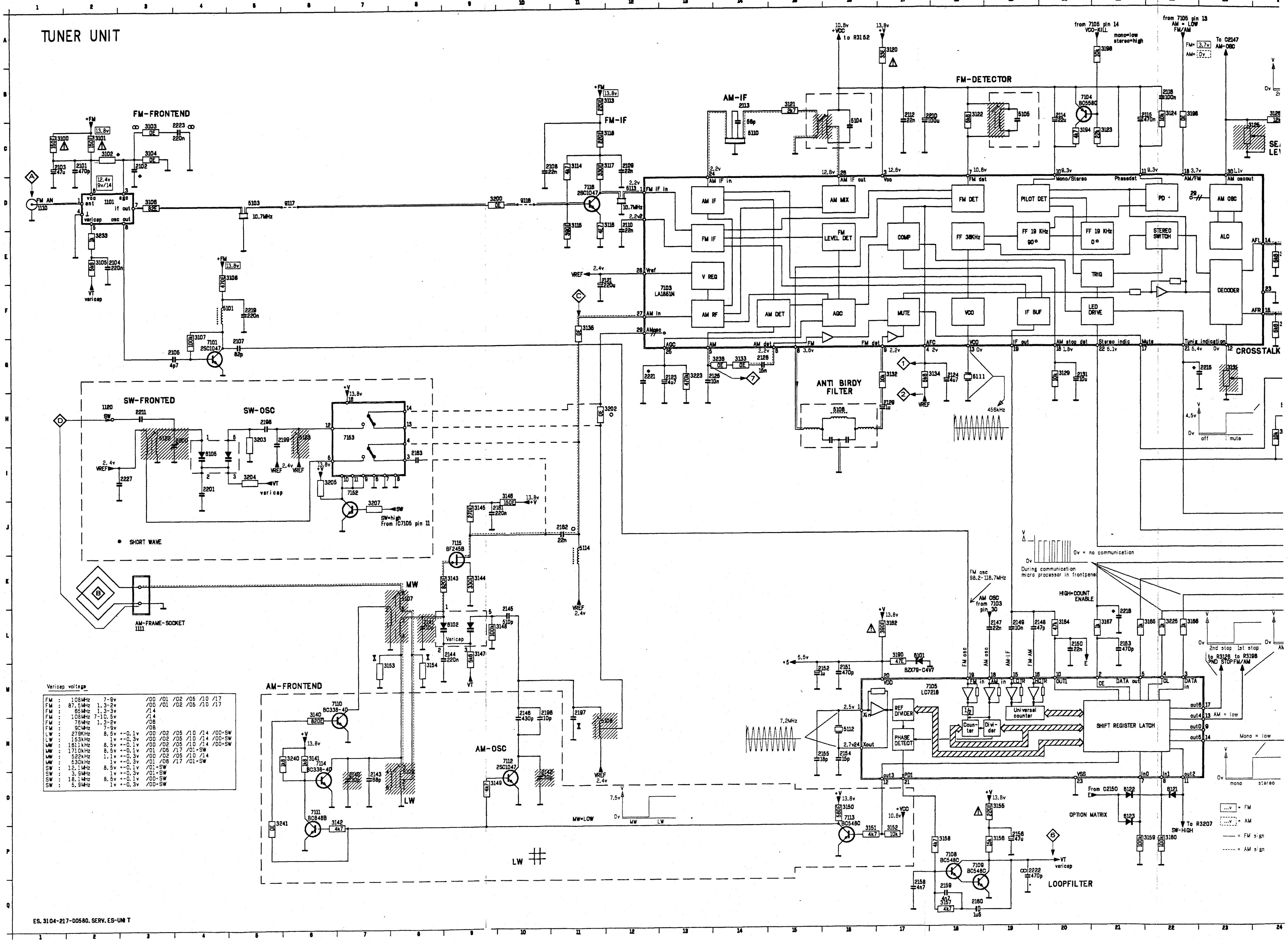
Vdc_FM_mode_stereo
Vdc_MW_mode
Vdc_LW_mode
EVM
voltages measured while set is tuned to a strong transmitter

o for 2-band version only
x for LW version only
* for USA version only

1101	C 2
1103	O 2
1153	C30
1173	D30
2100	C 2
2104	C 4
2107	I 8
2112	N 6
2113	M 4
2114x	N 4
2115	J 7
2120	K 8
2121	K 8
2122	K20
2123	K20
2124	K22
2125x	O12
2126x	P 4
2129x	O12
2134	I22
2135	N14
2136	N11
2138o	N14
2139x	O15
2141	C10
2142	G13
2143	G13
2144	G14
2147	C 9
2150	H 7
2151	H 6
2152	H10
2154	C11
2155	C11
2156	B12
2157	C12
2158B	C13
2159B	C14
2160	B15
2161	C15
2162	I10
2168	I10
2169	I10
2170	O17
2171	N17
2172	M17
2173	M17
2174	I10
2175	K10
2178	I21
2179	I21
2180A	H25
2181	G25
2183	I23
2184	I29
2185	L 8
2186	F26
2999	P23
3106	L 7
3107x	P 5
3108	K 7
3109x	O 5
3111	J10
3112	J11
3119	K21
3120	L 8
3121	K20
3122	K21
3123	N20
3124x	O 8
3125x	O15
3128	M15
3129x	O13
3132	M12
3141	D18
3142	G14
3144	H18
3147	I 9
3148	J 9
3149	J 9
3151	C 4
3154	B12
3155	C12
3156	D19
3157	I 7
3160	C13
3161	C14
3162	B15
3163	C15
3164	B16
3165	C16
3166	F27
3167A	J29
3170	N18
3171	F29
3172	N17
3173	M16
3174	M16
3175	N17
3176	K10
3178	I22
3179	J26
3180	C18
3181	C18
3183	E22
3184	E22
3185	I24
3186	I27
3188	H25
3189	E29
3190	E29
3191	E29
3192	E29
3193	M18
3194	G31
3195	H31
3197A	H31
3220	J14
3221	O 3
3222o	P 3
3224	M14
3226o	N14
3229o	O14
3236o	N 2
3238x	N 9
3241o	O11
3242	M11
3243o	N10
3244	M 9
3245x	N 4
3248	C 5
3249x	I11
5107B	M 2
5108x	N 3
5109	I 7
5120	J 8
5122x	O10
5123	N10
5140	A 5
5142	A 8
5143	D 7
5144	D 9
5145	C10
5150	I10
5170	G25
6105	O25
6109	J 7
6121	E21
6122	E21
6123	E21
6124	K 8
6140	I 9
6154	D18
6174B	I29
7102x	P 4
7104x	N 5
7105	I 7
7120	L20
7121x	O 8
7123x	O13
7128x	N15
7140	E 5
7150	J14
7150	J11
7150	A13
7150	C14
7150	B14
7150	B13
7156	B16
7157	C16
7169	G27
7170	O17
7171	O17
7172	H16
7172	D20
7172	O20
7172	N22
7172	N20
7172	O22
7173	H24
7174	D17
7178	J25
9114	I23
9197	C 3
9199	J 6
T001	C 2
T002	D 2
T005	O 3
T006	O 3
T007	D 6
T008	D 6
T009	G 6
T010	H10
T011	H10
T012	C 8
T013	C11
T014	B11
T015	M16
T016	I29
T020	B29
T021	C29
T022	C29
T023	C29
T027	D30
T028	E30
T029	E30
T030	E30
T031	E30
T032	F30
T033	F30
T036	O17
T038	F22

PCS 63 106

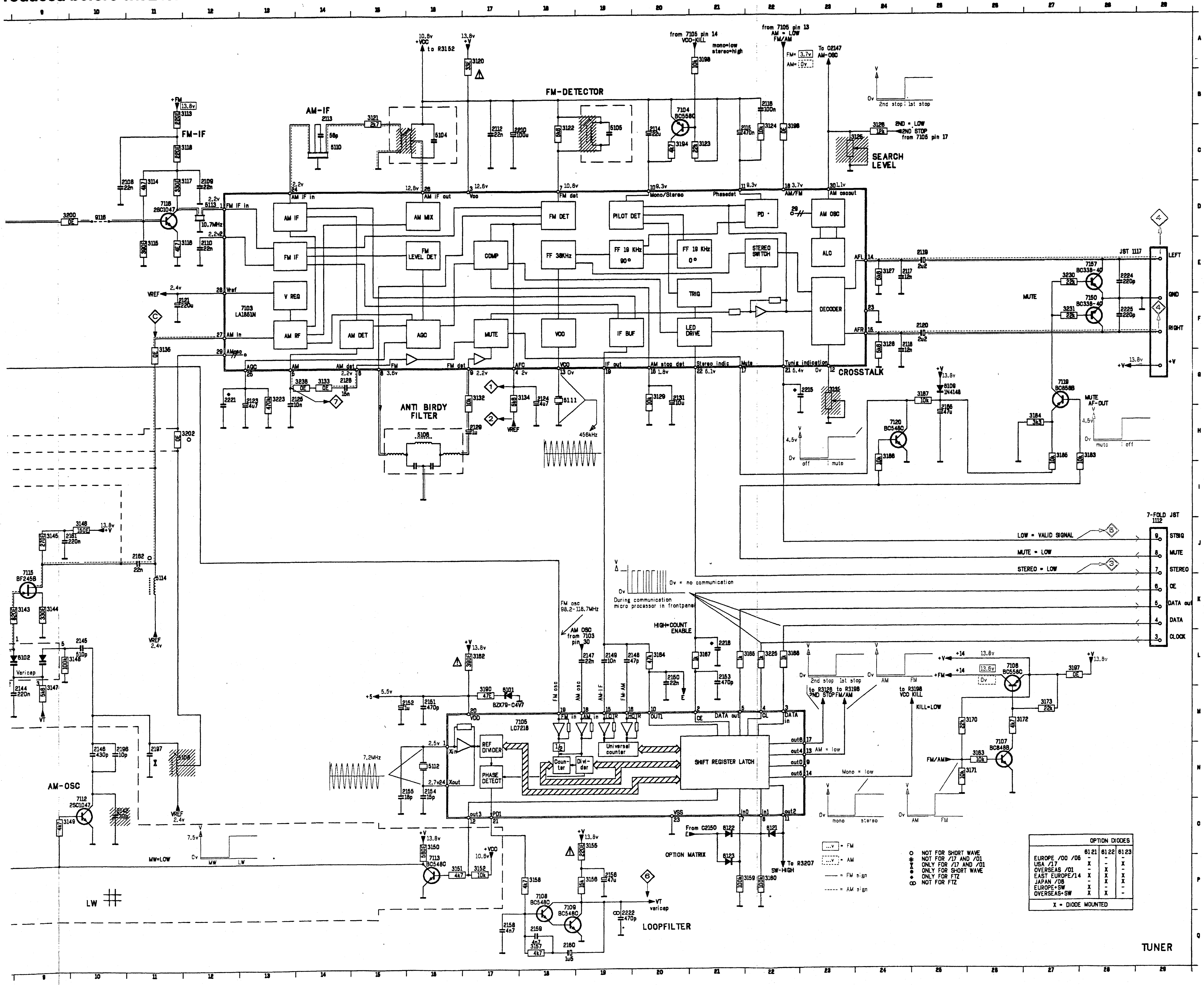
TUNER 92 CIRCUIT DIAGRAM - For /22 and other versions produced before wk 249.


TUNER UNIT
FM-FRONTEND
FM-IF
AM-IF
FM-DETECTOR
SW-FRONTED
SW-OSC
AM-FRONTEND
AM-OSC
ANTI BIRDY FILTER
LOOPFILTER
CROSSTALK
FM AN 1110
AM-FRAME-SOCKET 1111
7103 LA1851N
7105 LC7218
AM IF
AM MIX
FM DET
PILOT DET
PD
AM OSC
FM IF
FM LEVEL DET
COMP
FF 38KHz
FF 19 KHz 90°
FF 19 KHz 0°
STEREO SWITCH
ALC
V REG
TRIG
DECODER
AM RF
AM DET
AGC
MUTE
VCO
IF BUF
LED DRIVE
REF DIVIDER
PHASE DETECT
Counter
Divider
Universal counter
SHIFT REGISTER LATCH
SHORT WAVE
MW
LW
Varicap
7.2MHz
456kHz
10.7MHz
from 7105 pin 14 VCO-KILL
mono=low stereo=high
from 7105 pin 13 AM = LOW FM/AM
FM osc 98.2-118.7MHz
AM OSC from 7103 pin 30
HIGH=COUNT ENABLE
0v = no communication
During communication micro processor in frontpanel
OPTION MATRIX
SW=high From IC7105 pin 11
MW=LOW
To R3207 SW-HIGH
From C2150
...v = FM
...v = AM
— = FM sign
---- = AM sign
2nd stop 1st stop
to R3126 to R3198 2ND STOP FM/AM
Mono = low
mono stereo
off mute
ES. 3104-217-00580. SERV. ES-UNI T

Varicap voltage

FM	:	108MHz	7-9v		/00 /01 /02 /05 /10 /17
FM	:	87,5MHz	1,3-2v		/00 /01 /02 /05 /10 /17
FM	:	65MHz	1,3-3v		/14
FM	:	108MHz	7-10,5v		/14
FM	:	76MHz	1,3-2v		/08
FM	:	90MHz	7-9v		/08
LW	:	279KHz	8,5v	+-0,1v	/00 /02 /05 /10 /14 /00+SW
LW	:	153kHz	1v	+-0,3v	/00 /02 /05 /10 /14 /00+SW
MW	:	1611kHz	8,5v	+-0,1v	/00 /02 /05 /10 /14 /00+SW
MW	:	1710kHz	8,5v	+-0,1v	/01 /08 /17 /01+SW
MW	:	522kHz	1,1v	+-0,3v	/00 /02 /05 /10 /14
MW	:	530kHz	1v	+-0,3v	/01 /08 /17 /01+SW
SW	:	12,1MHz	8,5v	+-0,1v	/01+SW
SW	:	3,9MHz	1v	+-0,3v	/01+SW
SW	:	18,1MHz	8,5v	+-0,1v	/00-SW
SW	:	5,9MHz	1v	+-0,3v	/00+SW

roduced before wk 249.



FM-DETECTOR
AM-IF
FM-IF
AM-OSC
ANTI BIRDY FILTER
LOOPFILTER
SEARCH LEVEL
CROSSTALK
TUNER
7103 LA1851N
7105 LC7218
AM IF
FM IF
V REG
AM RF
AM DET
AM MIX
FM LEVEL DET
COMP
FM DET
FF 38KHz
AGC
MUTE
VCO
IF BUF
PILOT DET
FF 19 KHz 90°
FF 19 KHz 0°
TRIG
LED DRIVE
PD
STEREO SWITCH
AM OSC
ALC
DECODER
REF DIVIDER
PHASE DETECT
Universal counter
Counter
Divider
SHIFT REGISTER LATCH
JST 1117
LEFT
GND
RIGHT
+V
7-FOLD JST 1112
STSIG
MUTE
STEREO
CE
DATA out
DATA
CLOCK
LOW = VALID SIGNAL
MUTE = LOW
STEREO = LOW
0v = no communication
During communication micro processor in frontpanel
HIGH=COUNT ENABLE
FM osc 98.2-118.7MHz
AM OSC from 7103 pin 30
from 7105 pin 14 VCO-KILL
mono=low stereo=high
from 7105 pin 13 AM = LOW FM/AM
To C2147 AM-OSC
END = LOW 2ND STOP from 7105 pin 17
2nd stop 1st stop
MUTE AF-OUT
mute off
MW=LOW
MW LW
LW
456kHz
7.2MHz
10.7MHz
to R3128 to R3198 2ND STOP FM/AM
to R3198 VCO KILL
KILL=LOW
SW-HIGH
To R3207
From C2150
OPTION MATRIX
AM = low
Mono = low
mono stereo
FM/AM
VT varicap
Varicap
= FM
= AM
= FM sign
= AM sign
NOT FOR SHORT WAVE
NOT FOR /17 AND /01
ONLY FOR /17 AND /01
ONLY FOR SHORT WAVE
ONLY FOR FTZ
NOT FOR FTZ

	OPTION DIODES		
	6121	6122	6123
EUROPE /00 /06	-	-	-
USA /17	X	-	X
OVERSEAS /01	-	X	-
EAST EUROPE/14	X	X	X
JAPAN /08	-	X	X
EUROPE+SW	X	-	-
OVERSEAS+SW	X	X	-

X = DIODE MOUNTED

1101	D 2	7101	G 4
2101	C 2	7103	F13
2102	C 3	7104	B20
2103	C 1	7105	M18
2104	E 2	7106	L26
2105	G 4	7107	M26
2107	G 5	7108	P18
2108	C10	7109	P18
2109	C12	7110	M 7
2110	D12	7111	O 6
2112	B17	7112	N10
2113	B14	7113	O16
2114	C20	7114	N 6
2115	C21	7115	J 9
2116	B22	7116	D11
2117	E24	7119	G27
2118	F24	7120	H24
2119	E25	7150	F28
2120	F25	7152	I 7
2121	F11	7153	H 7
2123	G13	7157	E28
2124	G18	9116	D10
2125	G13	9117	D 6
2126	G14		
2129	H17		
2131	G20		
2140	O 7		
2141	L 8		
2142	O10		
2143	O 7		
2144	L 8		
2145	L10		
2146	M10		
2147	L18		
2148	L19		
2149	L19		
2150	L20		
2151	M16		
2152	M15		
2153	L21		
2154	N16		
2155	N15		
2156	P19		
2158	Q17		
2159	Q18		
2160	Q18		
2161	J 9		
2162	J11		
2163	I 8		
2165	H25		
2196	M10		
2197	M11		
2198	H 5		
2199	H 5		
2200	H 3		
2201	I 4		
2210	C17		
2211	H 3		
2215	G22		
2216	L21		
2219	F 5		
2221	G12		
2222	P19		
2223	C 4		
2224	E28		
2225	F28		
2227	I 2		
3100	C 1		
3101	C 2		
3102	C 2		
3103	C 3		
3104	C 3		
3105	E 2		
3106	D 3		
3107	F 4		
3108	E 4		
3113	B11		
3114	C11		
3115	D11		
3116	D11		
3117	C11		
3118	C11		
3120	A17		
3121	B15		
3122	B18		
3123	C21		
3124	B22		
3126	B24		
3127	E24		
3128	F24		
3129	G20		
3132	G17		
3133	G14		
3134	G17		
3135	F11		
3140	M 6		
3141	N 6		
3142	O 7		
3143	K 8		
3144	K 8		
3145	J 9		
3146	I10		
3147	L 9		
3148	L 9		
3149	O 8		
3150	O16		
3151	P16		
3152	P17		
3153	M 7		
3154	M 8		
3155	O19		
3156	P19		
3157	Q18		
3158	P18		
3159	P21		
3160	P22		
3162	L17		
3163	N26		
3164	L20		
3165	L21		
3166	L22		
3167	L21		
3170	M25		
3171	N25		
3172	M26		
3173	M27		
3183	H27		
3184	H27		
3185	H27		
3186	H24		
3187	G25		
3190	L17		
3194	C20		
3196	B22		
3197	L27		
3198	A21		
3200	D10		
3202	H11		
3203	H 5		
3204	I 5		
3205	I 6		
3207	J 7		
3223	G13		
3225	L22		
3230	E27		
3231	F27		
3233	E 2		
3236	G14		
3240	N 5		
3241	O 5		
5104	C16		
5105	B19		
5106	H16		
5107	K 8		
5111	G18		
5112	N16		
6101	L17		
6102	L 8		
6105	I 4		
6109	G25		
6121	O22		
6122	O21		
6123	O21		

SERVICE KEY TEST TABLE

Timer/News/Tuner	Display	Function	Display	Tape deck	Display	C D	Display
Timer	18	Standby	1E	CD Sync	3A	Repeat	29
Timer/News set	16	Dolby B NR	33	Auto-rev	34	Scan	2A
Clock set	15	HS dubbing	32	**PB Deck**		Shuffle	2B
Presets Down	12	NS dubbing	31	Play Rev	38	Prog/Review	25
Presets Up	13	DBB	20	Stop	37	Clear	27
Band	11	Spatial sound	1F	Play Fwd	36	Edit	26
Tuning Down	19	CD	0D	Fast Rew	35	Stop	24
Tuning Up	1A	Tuner	0E	Fast Fwd	39	Play/Pause	28
Mono	14	Tape	0F	**R/P Deck**		Open/close	21
Autoprog	1C	Aux/TV	10	Record/pause	3B	Previous	22
Prog	1B	Jazz	09	Fast Rew	3C	Next	23
		Pop	0A	Fast Fwd	30		
		Classic	0B	Play Rev	2D		
		Flat	0C	Stop	2E		
				Play Fwd	2F		

Figure 1

TUNER SERVICE TEST FREQUENCIES

PRESET	Eur	East	USA	Jap	Osea	Osea + SW
1	87.50 MHz	65.81 MHz	87.5 MHz	76.0 MHz	87.50 MHz	87.50 MHz
2	98.00 MHz	74.00 MHz	98.0 MHz	90.0 MHz	98.00 MHz	98.00 MHz
3	108.00 MHz	87.50 MHz	108.0 MHz	522 kHz	108.00 MHz	108.00 MHz
4	522 kHz	98.00 MHz	530 kHz	558 kHz	530 kHz	530 kHz
5	558 kHz	108.00 MHz	560 kHz	999 kHz	560 kHz	560 kHz
6	999 kHz	522 kHz	1000 kHz	1494 kHz	1000 kHz	1000 kHz
7	1494 kHz	558 kHz	1600 kHz	1611 kHz	1600 kHz	1600 kHz
8	1611 kHz	999 kHz	1710 kHz		1710 kHz	1710 kHz
9	153 kHz	1494 kHz				3.900 MHz
10	156 kHz	1611 kHz				4.250 MHz
11	198 kHz	153 kHz				8.000 MHz
12	270 kHz	156 kHz				11.900 MHz
13	279 kHz	198 kHz				12.100 MHz
14		270 kHz				
15		279 kHz				

Figure 2

CD ERROR CODES TABLE

Error codes	Check area	Remarks
ERR 1002	ICs 7000, 7060 and 7080	Focus error, no disc
ERR 1007	CDM 12 and Disc	Subcode error, no valid subcode
ERR 1008	Bad Disc and Lens	TOC error, out of lead-in area while reading TOC
ERR 1009	IC 7101 and 7102	CD decoder error
ERR 1010	IC 7000 and 7080	Radial error
ERR 1012	ICs 7000 and 7660	Fatal sledge error
ERR 1013	ICs 7102, 7140, 7141 and 7660	Turntable motor error
ERR 1030	CDM 12 and IC 7000	Too many grooves to jump
ERR 1031	CDM 12 and IC 7000	Search timeout
ERR 1032	CDM 12 and IC 7000	Search binary error
ERR 1033	CDM 12 and IC 7000	Search index error
ERR 1034	CDM 12 and IC 7000	Search time error
ERR 1037	CDM 12 and IC 7000	Selection error
ERR 1050	Operating error	Edit calculation error
ERR 1051	Operating error	Edit track count error
ERR 1052	Operating error	Edit optimal error

Figure 3

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

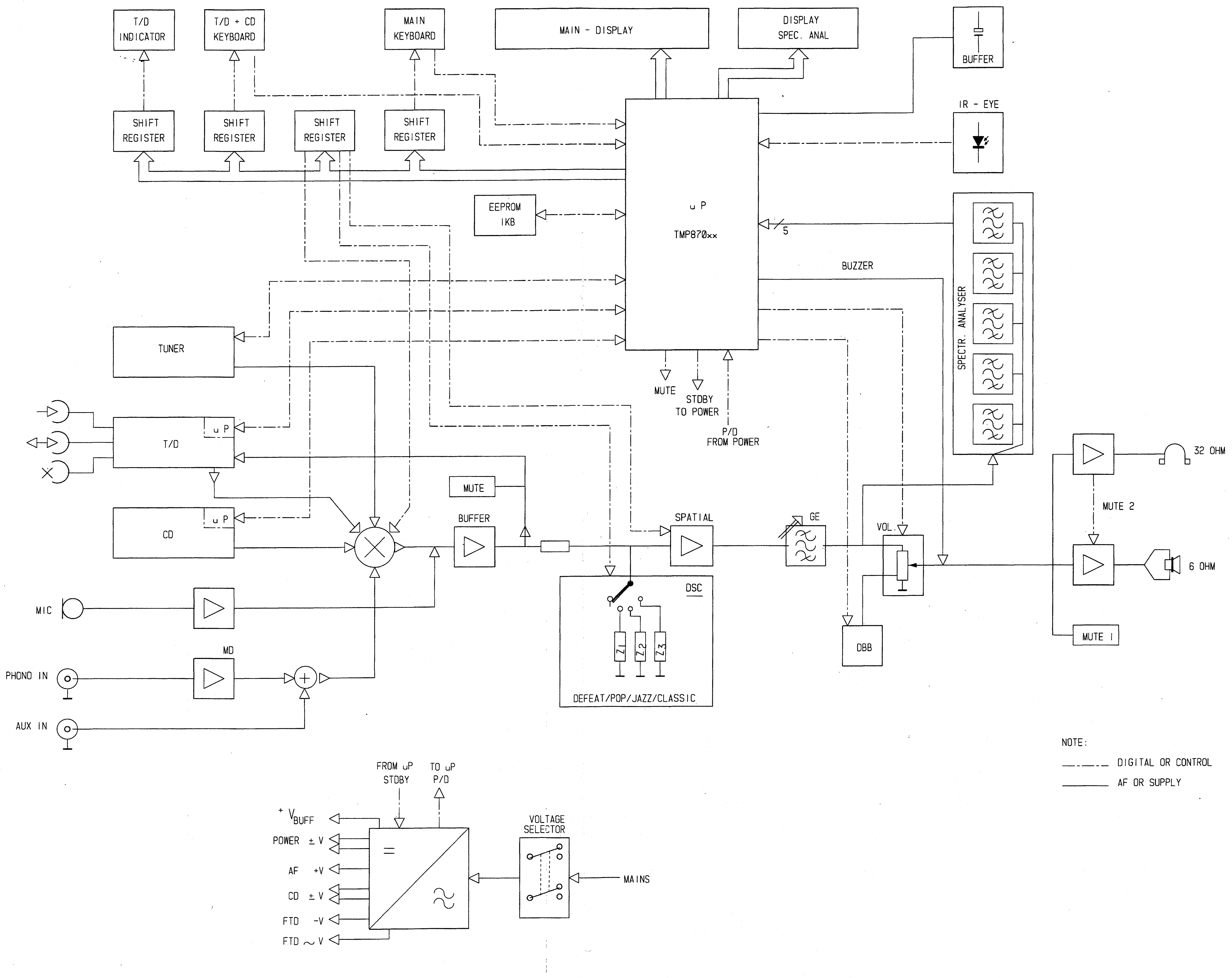
(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

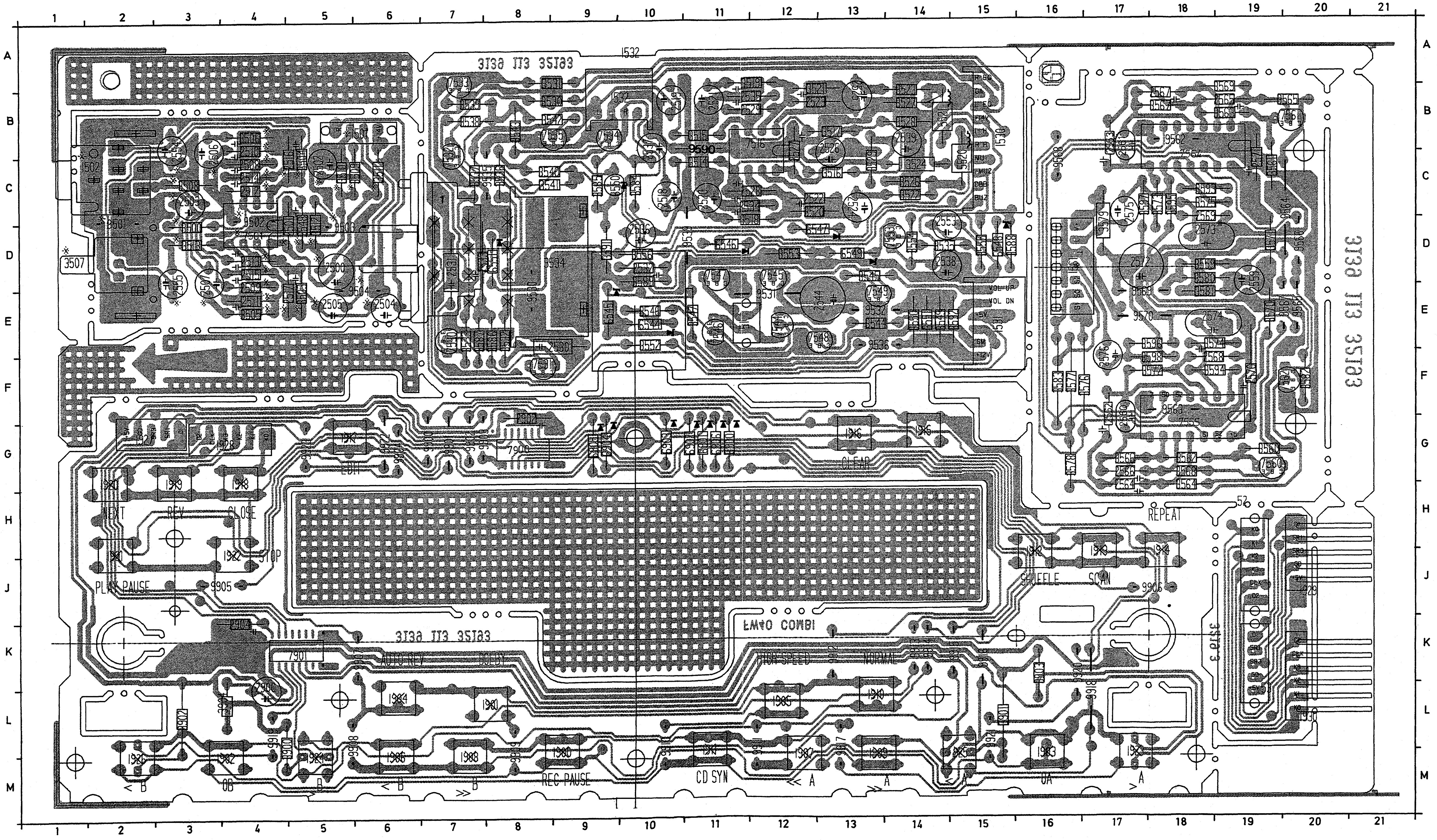
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

BLOCK DIAGRAM


T/D INDICATOR
T/D + CD KEYBOARD
MAIN KEYBOARD
MAIN - DISPLAY
DISPLAY SPEC. ANAL
BUFFER
SHIFT REGISTER
SHIFT REGISTER
SHIFT REGISTER
SHIFT REGISTER
IR - EYE
EEPROM IKB
u P
TMP870xx
5
BUZZER
SPECTR. ANALYSER
TUNER
MUTE
STDBY TO POWER
P/D FROM POWER
T/D
u P
CD
u P
MUTE
BUFFER
SPATIAL
GE
VOL.
32 OHM
MUTE 2
6 OHM
DSC
Z1
Z2
Z3
DEFEAT/POP/JAZZ/CLASSIC
DBB
MUTE 1
MIC
MD
PHONO IN
AUX IN
NOTE:
DIGITAL OR CONTROL
AF OR SUPPLY
FROM uP STDBY
TO uP P/D
+ V_BUFF
POWER ± V
AF +V
CD ± V
FTD -V
FTD ~ V
=
~
VOLTAGE SELECTOR
MAINS

COMBI BOARD COMPONENT LAYOUT

051	E11	1904	L6	1918	G4	2501	C4	2515	D4	2529	B12	2555	D3	2572	D17	3511	C6	3525	A14	3540	C8	3554	D14	3570	E19	3584	C10	3598	E17	6550	C9	7533	A7	7565	F18			9904	G6	9918	K17
052	H19	1905	L12	1919	G3	2502	C5	2516	C4	2530	E8	2559	D19	2573	D18	3512	C5	3526	C14	3541	C8	3555	D15	3571	D19	3585	C9	3900	L4	6551	D8	7534	B9	7900	G8	9562	B18	9905	J3	9919	L4
053	L19	1906	M6	1920	G2	2503	C3	2517	E4	2531	D7	2560	F17	2574	E18	3513	D3	3527	B14	3542	B9	3556	D10	3572	F17	3586	E8	3901	L15	6900	G11	7535	B9	7901	K5	9563	F18	9906	J18	9920	K17
1501	B6	1907	M12	1921	H2	2504	E6	2518	C10	2532	D10	2561	B17	2575	C17	3514	B11	3528	B14	3543	B8	3559	D18	3573	C18	3587	E7	3902	K3	6901	G11	7544	E12	9501	C2	9564	C19	9907	K9	9921	L15
1502	B2	1908	M7	1922	H4	2505	E5	2519	B10	2533	D8	2562	F17	2576	E17	3515	B11	3529	D13	3544	E13	3560	G19	3574	E18	3588	D15	3903	K16	6902	G11	7545	D12	9502	C4	9565	E20	9908	L5	9922	G6
1530	B15	1909	M13	1923	L17	2506	B3	2520	C11	2534	C12	2563	B17	2900	K4	3516	C13	3530	B9	3545	D13	3561	C19	3575	C18	3589	D10	3904	L4	6903	G10	7546	E11	9503	C5	9566	D20	9909	M8	9923	G5
1531	E15	1910	K13	1924	L5	2507	D3	2521	B11	2535	B12	2564	G17	3500	C3	3517	B13	3531	A9	3546	E10	3562	G18	3576	E17	3590	B11	5520	B15	6904	G9	7547	D11	9504	D5	9567	E20	9910	L10		
1532	A9	1911	M11	1925	L15	2508	B4	2522	C13	2536	C10	2565	B19	3504	B5	3518	C12	3532	E8	3547	E11	3563	B19	3577	E17	3591	D9	5521	B14	6905	G9	7548	E13	9530	E8	9568	C16	9911	L12	2902	F8
1561	C17	1912	H16	1926	L2	2509	D4	2523	B12	2537	B10	2566	G17	3505	E4	3519	A12	3533	E7	3548	C5	3564	G18	3578	G18	3592	E15	6544	E10	6906	G11	7549	D13	9531	E12	9569	D17	9912	K13	2904	J4
1561	D16	1913	H17	1927	G2	2510	B4	2524	C13	2538	D14	2567	B18	3506	B4	3520	C13	3534	D8	3549	E14	3565	A20	3579	D17	3593	C18	6545	E9	7501	D4	7553	D14	9532	E13	9570	E17	9913	K14		
1900	M9	1914	H18	1928	G8	2511	E4	2525	B13	2539	B14	2568	F19	3507	D1	3521	A12	3536	C8	3550	E14	3566	G17	3580	D18	3594	F18	6546	D11	7516	B12	7560	G19	9535	C8	9900	G7	9914	K14		
1901	L8	1915	G14	1929	J20	2512	C4	2526	B13	2544	E13	2569	C18	3508	C3	3522	C14	3537	C7	3551	E14	3567	B18	3581	D18	3595	C18	6547	C13	7530	E7	7561	B20	9536	E13	9901	G7	9915	K15		
1902	M4	1916	G13	1930	L20	2513	D4	2527	B12	2553	C14	2570	F19	3509	C5	3523	A14	3538	B7	3552	E10	3568	G18	3582	F20	3596	E17	6548	D15	7531	F8	7562	E20	9539	D11	9902	G7	9916	K15		
1903	L16	1917	G5	2500	D5	2514	C4	2528	C12	2554	B3	2571	B19	3510	C5	3524	C14	3539	B7	3553	D12	3569	B19	3583	F16	3597	C17	6549	D13	7532	B7	7564	B18			9903	G7	9917	M13		

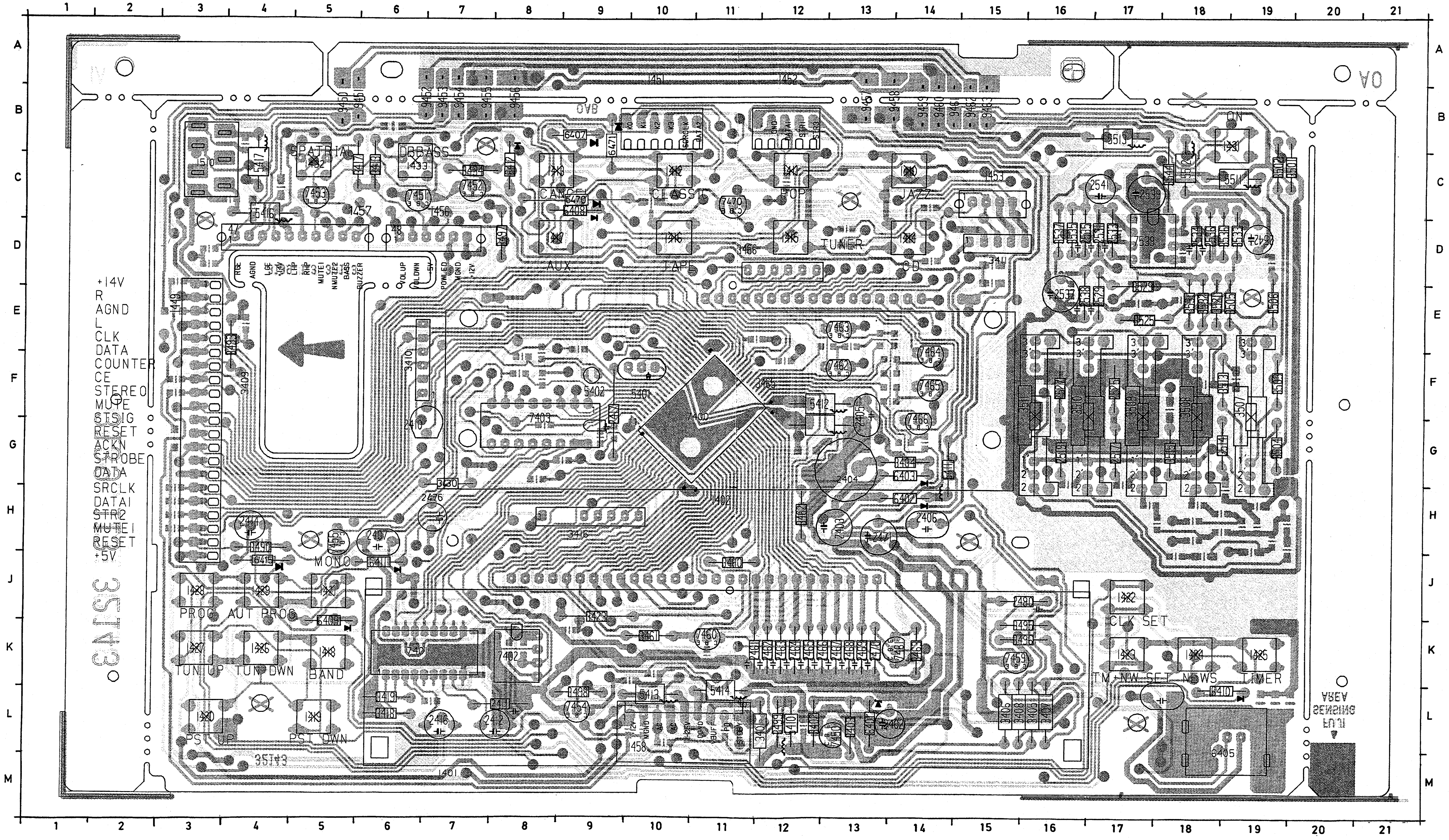

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
J
K
L
M
3507
1532
1530
1531
1502
9590
VOL UP
VOL DN
NEXT
REV
CLOSE
STOP
PLAY PAUSE
9905
EDIT
7900
2902
CLEAR
REPEAT
SHUFFLE
SCAN
9906
1929
1930
7901
AUTO REV
DOLBY
EM40 COMBI
HIGH SPEED
NORMAL
< B
0B
B
< B
>> B
REC PAUSE
CD SYN
<< A
>> A
< A
0A
> A

NOTE

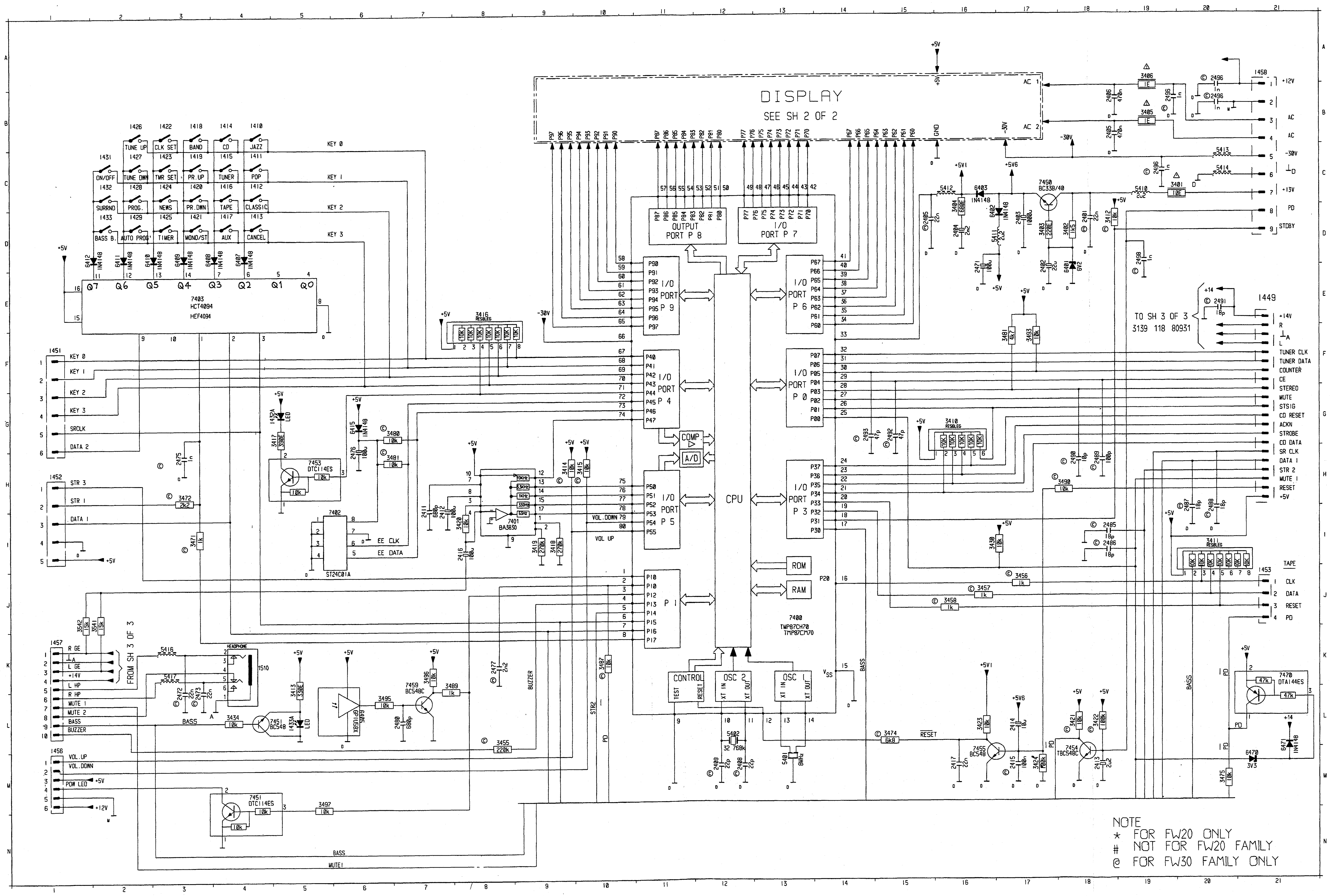
-×- FOR -/21 ONLY

FRONT COMPONENT LAYOUT

046	L11	1415	D12	1425	K19	1453	C15	2406	H14	2417	G9	2470	K13	2533	D17	3402	L12	3413	C6	3461	K10	3499	L12	3510	F16	3533	D19	5413	L10	6405	M18	7403	G8	7462	F13	9454	B7		
047	D4	1416	D10	1426	K4	1456	C7	2407	H6	2461	K11	2471	H13	2534	D18	3403	L13	3416	H9	3462	H12	3501	C19	3511	F16	3535	D16	5414	L11	6407	B9	7450	L13	7463	E13	9455	B7	2476	H7
048	D6	1417	D8	1427	K3	1457	C5			2462	K12	2480	J16	2535	D16	3404	G14	3417	C5	3463	K14	3502	C19	3513	F18	3536	D18	5416	C4	6408	C9	7451	C6	7464	F14	9456	B8	3490	H4
1401	M7	1418	K5	1428	J3	1458	L10			2463	K12			2536	D18	3405	L16	3418	L6	3465	F12	3503	F19	3514	G18	3537	D16	5417	C4	6409	K5	7452	C7	7465	F14	9457	B13	6415	J4
1402	H11	1419	L5	1429	J4	1490	E3	2410	G6	2464	K12	2517	G17	2537	E16	3406	L15	3419	L6	3466	D11	3504	G19	3515	G18	3544	C18	5511	C19	6410	L18	7453	C5	7466	G14	9458	B13	6470	C9
1410	C14	1420	L3	1431	B19	1510	C3	2411	L8	2465	K12	2519	G16	2538	E16	3407	L16	3423	J9	3493	E4	3505	E19	3521	E18	5401	F10	5512	C18	6411	J6	7454	L9	7539	D17	9459	B14	6471	B9
1411	C12	1421	J5	1432	C5	2402	L14	2412	L8	2466	K12	2525	F17	2539	C17	3408	L15	3424	J4	3495	K16	3506	E19	3525	E17	5402	F9	5513	B17	6412	C8	7455	H5	9450	B5	9460	B14	7470	C11
1412	C10	1422	J17	1433	C6	2403	H13			2467	K13	2527	F16	2541	C17	3409	F4	3430	H7	3496	K16	3507	F19	3529	E17	5410	L12	6401	L13	7400	G11	7459	K15	9451	B5	9461	B14		
1413	C8	1423	K17	1451	A10	2404	G13	2414	H4	2468	K13	2529	E17	2542	D19	3410	F6	3434	C7	3497	D8	3508	F18	3531	E18	5411	G14	6402	H14	7401	K6	7460	K11	9452	B6	9462	B15		
1414	F14	1424	K18	1452	A12	2405	G13	2416	L7	2469	K13	2531	D17	3401	L12	3411	D15	3460	J11	3498	L9	3509	F17	3532	E18	5412	F12	6403	G14	7402	K8	7461	K14	9453	B7	9463	B15		


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
J
K
L
M
+14V
R
AGND
L
CLK
DATA
COUNTER
CE
STEREO
MUTE
STSIG
RESET
ACKN
STROBE
DATA
SRCLK
DATAI
STR2
MUTEI
RESET
+5V
SPATIAL
DBBASS
CANCEL
CLASSIC
POP
JAZZ
AUX
TAPE
TUNER
CD
ON
MONO
PROG
AUT PROG
TUN UP
TUN DWN
BAND
PST UP
PST DWN
CLK SET
TM+NW SET
NEWS
TIMER
FLU SENSING AREA
3ST43

FRONT CIRCUIT I


DISPLAY
SEE SH 2 OF 2
CPU
7400
TMP87CH70
TMP87CM70
I/O PORT P 9
I/O PORT P 4
I/O PORT P 5
P 1
OUTPUT PORT P 8
I/O PORT P 7
I/O PORT P 6
I/O PORT P 0
I/O PORT P 3
COMP.
A/D
ROM
RAM
CONTROL
OSC 2
OSC 1
7403
HCT4094
HEF4094
7402
ST24C01A
7401
BA3850
7450
BC338/40
7453
DTC114ES
7451
DTC114ES
7459
BC548C
7455
BC548
7454
TBC548C
7470
DTA144ES
TUNE UP
CLK SET
BAND
CD
JAZZ
ON/OFF
TUNE DWN
TMR SET
PR.UP
TUNER
POP
SURRND
PROG.
NEWS
PR.DWN
TAPE
CLASSIC
BASS B.
AUTO PROG
TIMER
MONO/ST
AUX
CANCEL
KEY 0
KEY 1
KEY 2
KEY 3
SRCLK
DATA 2
STR 3
STR 1
DATA 1
EE CLK
EE DATA
VOL.DOWN
VOL UP
R GE
L GE
+14V
L HP
R HP
MUTE 1
MUTE 2
BASS
BUZZER
VOL.UP
VOL.DOWN
POW LED
FROM SH 3 OF 3
HEADPHONE
TO SH 3 OF 3
3139 118 80931
TUNER CLK
TUNER DATA
COUNTER
CE
STEREO
MUTE
STSIG
CD RESET
ACKN
STROBE
CD DATA
SR CLK
DATA 1
STR 2
MUTE 1
RESET
+5V
TAPE
CLK
DATA
RESET
PD
+12V
AC
-30V
+13V
STDBY
RESET
MUTE1

NOTE
* FOR FW20 ONLY
# NOT FOR FW20 FAMILY
@ FOR FW30 FAMILY ONLY

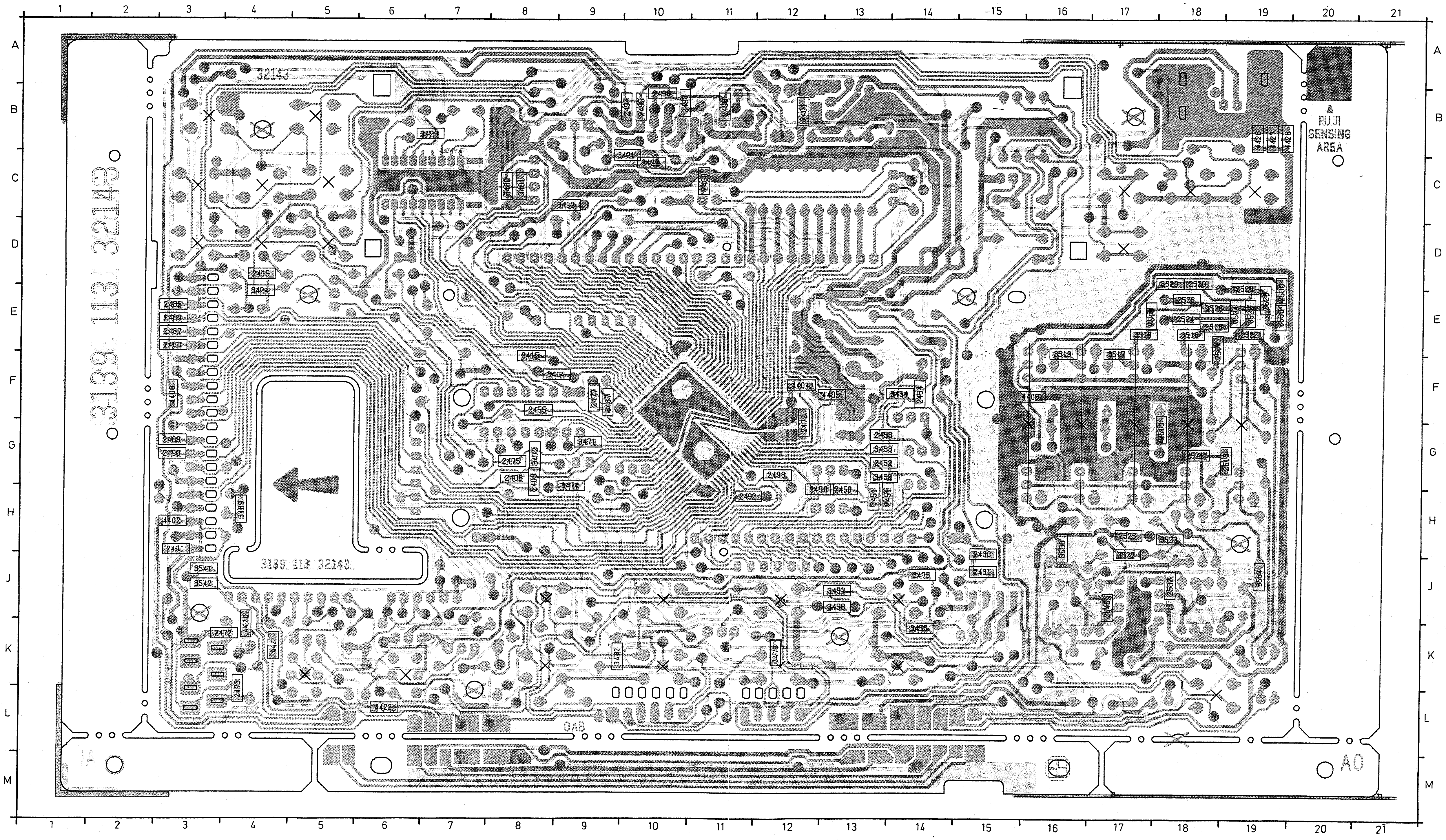
1410	B 4
1411	C 4
1412	C 4
1413	D 4
1414	B 4
1415	C 4
1416	C 4
1417	D 4
1418	B 3
1419	C 3
1420	C 3
1421	D 3
1422	B 3
1423	C 3
1424	C 3
1425	D 3
1426	B 2
1427	C 2
1428	C 2
1429	D 2
1431	C 2
1432	C 2
1432A	G 5
1433	D 2
1433A	L 5
1449	F21
1449	F21
1449	F21
1449	F21
1449	G21
1449	G21
1449	G21
1449	F21
1449	F21
1449	G21
1449	G21
1449	H21
1449	H21
1449	H21
1449	H21
1449	H21
1449	H21
1449	F21
1449	G21
1449	E21
1449	H21
1451	F 1
1451	F 1
1451	G 1
1451	G 1
1451	G 1
1451	G 1
1452	H 1
1452	H 1
1452	I 1
1452	I 1
1452	I 1
1453	J21
1453	J21
1453	J21
1453	J21
1456	L 1
1456	M 1
1456	M 1
1456	M 1
1456	M 1
1456	M 1
1457	K 1
1457	K 1
1457	K 1
1457	K 1
1457	K 1
1457	L 1
1457	L 1
1457	L 1
1457	L 1
1457	L 1
1458	A21
1458	B21
1458	B21
1458	B21
1458	C21
1458	C21
1458	C21
1458	D21
1458	D21
1510	J2
2401	D18
2402	E17
2403	D17
2404	D16
2405	D15
2405	B18
2406	B18
2408	M12
2409	M12
2411	I 7
2412	I 7
2413	M18
2414	L17
2415	M17
2416	I 8
2417	M16
2471	E16
2472	L 3
2473	L 3
2475	H 3
2476	H 6
2477	K 8
2480	L 7
2485	I18
2486	I18
2487	I20
2488	I20
2489	H18
2490	H18
2491	E20
2492	G15
2493	G14
2496	C19
2496	B20
2496	A20
2496	B19
2498	D19
3401	C20
3402	D18
3403	D17
3404	D16
3405	B19
3406	A19
3410	G16
3411	H20
3412	D18
3413	K 5
3414	H 9
3415	H10
3416	E8
3417	G 5
3418	I 9
3419	I 9
3420	I 8
3421	L18
3422	L18
3423	L16
3424	M17
3430	I16
3434	L 4
3455	L 8
3456	J17
3457	J16
3458	J16
3471	I 3
3472	H 3
3474	L15
3475	M20
3480	G 7
3481	H 7
3481	F17
3487	K10
3489	K 7
3490	H18
3493	F17
3495	L 6
3496	K 7
3497	M 5
3541	J 2
3542	J 1
5401	M13
5402	L12
5410	C19
5411	D17
5412	C16
5413	C20
5414	C20
5416	K 3
5417	K 3
6401	E18
6402	D16
6403	C16
6405	L 6
6407	D 4
6408	D 3
6409	D 3
6410	D 2
6411	D 2
6412	D 1
6415	G 6
6470	M21
6471	L21
7402	I 5
7403	E 3
7450	C17
7452	M4
7451	L 4
7453	G5
7454	M18
7455	M16
7459	K 7

PCS 63 152

FRONT CHIP LAYOUT

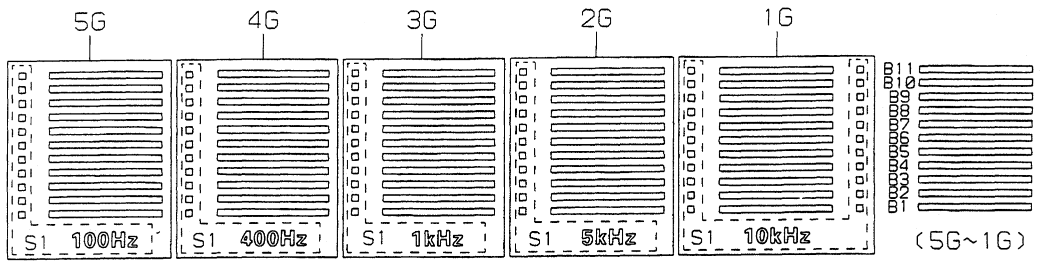
2401	B12	2431	J14	2454	F14	2477	F9	2488	E3	2493	G12	2498	B11	2518	E17	2524	E18	2545	J17	3421	C10	3452	G13	3457	J13	3474	H9	3487	F9	3519	J16	3526	E18	3538	H16	4402	H3	4420	K4
2408	G8	2450	H13	2460	C11	2479	G12	2489	G3	2494	B10	2513	G19	2520	D18	2526	E18	3412	C9	3422	C10	3453	G13	3458	J13	3475	J14	3489	H4	3520	D18	3527	J17	3541	J3	[illegible]	[illegible]	4421	K4
2409	G8	2451	H13	2472	K4	2485	E3	2490	G3	2495	B10	2514	E18	2521	G18	2528	E19	3414	F9	3424	E4	3454	F14	3471	G9	3480	C8	3516	E18	3522	E19	3528	E19	3542	J3	4404	F12	4423	L6
2415	D4	2452	G13	2473	L4	2486	E3	2491	J3	2496	B10	2515	G18	2522	E19	2530	E19	3415	F8	3450	H12	3455	F8	3472	G8	3481	C8	3517	F17	3523	H18	3530	E19	4400	F3	4405	F13	4426	B19
2430	J14	2453	G13	2475	G8	2487	E3	2492	H11	2497	B10	2516	E18	2523	H17	2532	J18	3420	B7	3451	H13	3456	K14	3473	K12	3482	K9	3518	E17	3524	E19	3534	J19	[illegible]	H3	4406	J16	4427	B19

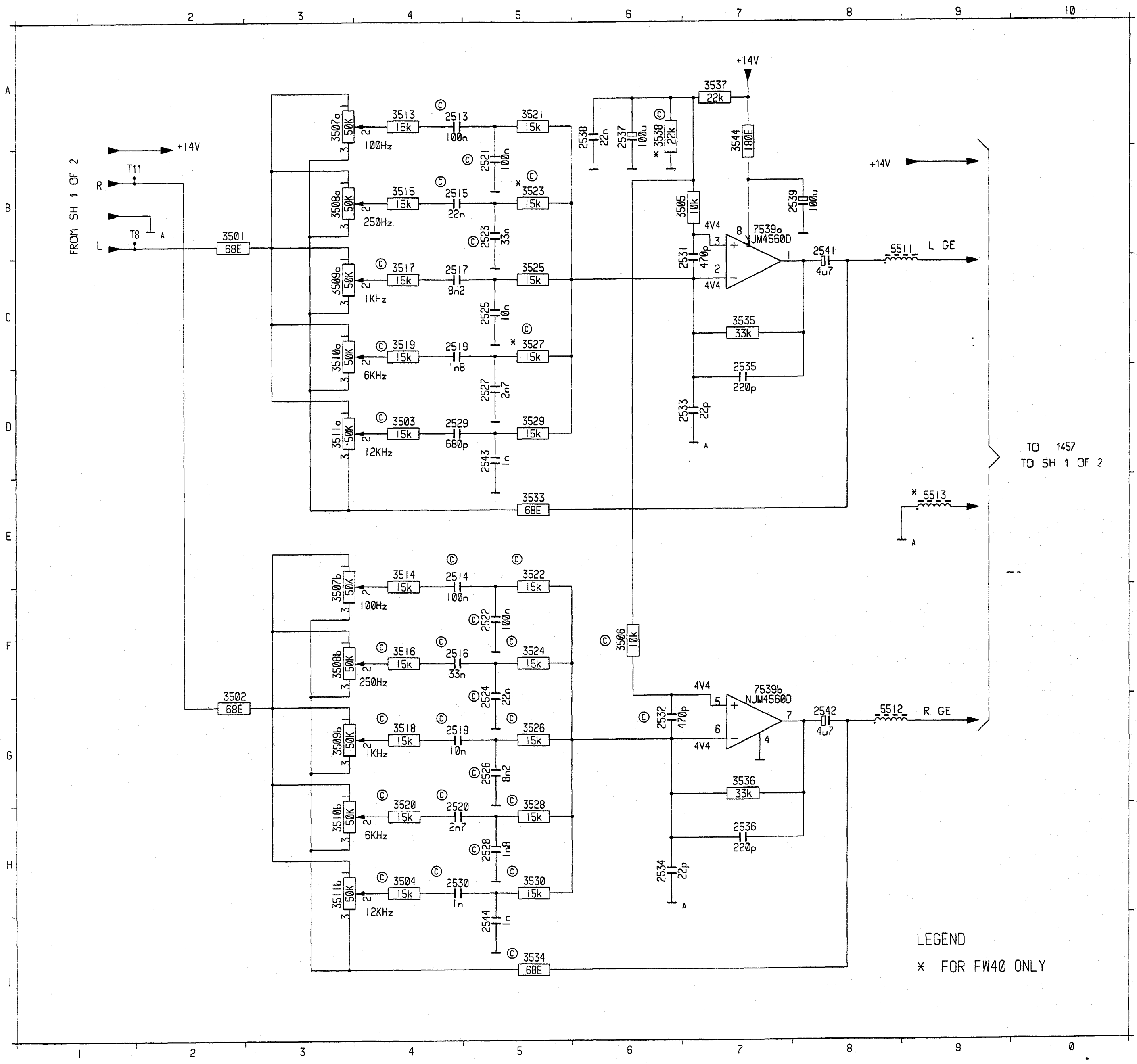
4428	B19



FRONT CIRCUIT II

GRID ASSIGNMENT


5G
4G
3G
2G
1G
S1 100Hz
S1 400Hz
S1 1kHz
S1 5kHz
S1 10kHz
B11
B10
(5G~1G)

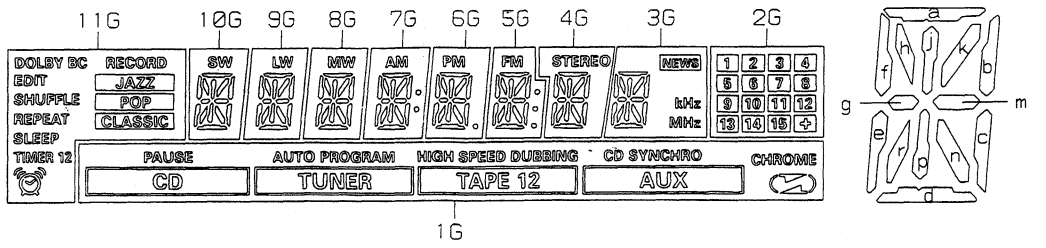

FROM SH 1 OF 2
+14V
T11
T8
R
L
3501 68E
3502 68E
3507a 50K 100Hz
3508a 50K 250Hz
3509a 50K 1KHz
3510a 50K 6KHz
3511a 50K 12KHz
3507b 50K 100Hz
3508b 50K 250Hz
3509b 50K 1KHz
3510b 50K 6KHz
3511b 50K 12KHz
3513 15k
3515 15k
3517 15k
3519 15k
3503 15k
3514 15k
3516 15k
3518 15k
3520 15k
3504 15k
2513 100n
2515 22n
2517 8n2
2519 1n8
2529 680p
2514 100n
2516 33n
2518 10n
2520 2n7
2530 1n
3521 15k
3523 15k
3525 15k
3527 15k
3529 15k
3522 15k
3524 15k
3526 15k
3528 15k
3530 15k
3533 68E
3534 68E
3537 22k
3538 22k
3544 180E
3505 10K
3506 10K
7539a NJM4560D
7539b NJM4560D
4V4
2541 4u7
2542 4u7
5511 L GE
5512 R GE
5513
3535 33k
3536 33k
2535 220p
2536 220p
TO 1457 TO SH 1 OF 2

LEGEND

× FOR FW40 ONLY

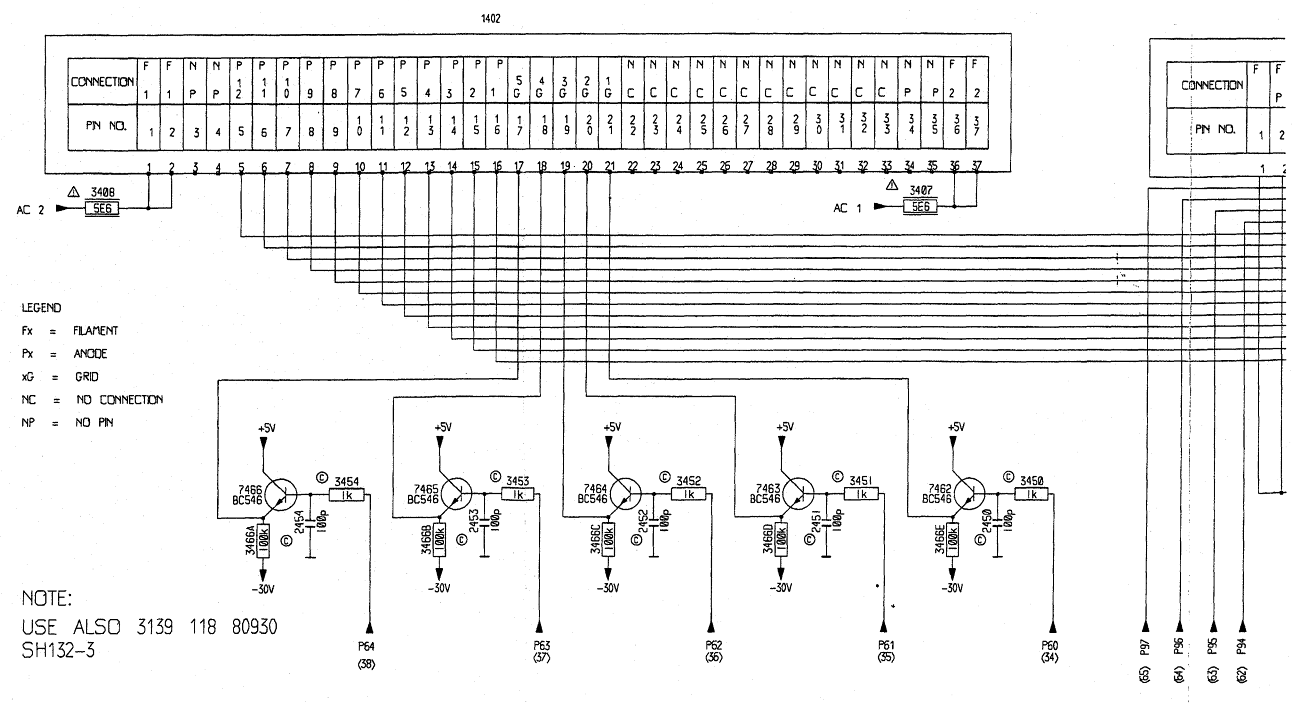
2513	A	4
2514	E	4
2515	B	4
2516	F	4
2517	C	4
2518	G	4
2519	C	4
2520	H	4
2521	B	5
2522	F	5
2523	B	5
2524	F	5
2525	C	5
2526	G	5
2527	D	5
2528	H	5
2529	D	4
2530	H	4
2531	B	7
2532	G	6
2533	D	7
2534	H	6
2535	D	7
2536	H	7
2537	A	6
2538	A	6
2539	B	8
2541	B	8
2542	G	8
2543	D	5
2544	I	5
3501	B	2
3502	G	2
3503	D	4
3504	H	4
3505	B	7
3506	F	6
3507a	A	3
3507b	E	3
3508a	B	3
3508b	F	3
3509a	C	3
3509b	G	3
3510a	C	3
3510b	H	3
3511a	D	3
3511b	H	3
3513	A	4
3514	E	4
3515	B	4
3516	F	4
3517	C	4
3518	G	4
3519	C	4
3520	H	4
3521	A	5
3522	E	5
3523	B	5
3524	F	5
3525	C	5
3526	G	5
3527	C	5
3528	H	5
3529	D	5
3530	H	5
3533	E	5
3534	I	5
3535	C	7
3536	G	7
3537	A	7
3538	A	6
3544	A	7
5511	B	9
5512	G	8
5513	E	9
7539a	B	7
7539b	F	7

GRID ASSIGNMENT


11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
DOLBY BC
EDIT
SHUFFLE
REPEAT
SLEEP
TIMER 12
RECORD
JAZZ
POP
CLASSIC
SW
LW
MW
AM
PM
FM
STEREO
NEWS
kHz
MHz
PAUSE
AUTO PROGRAM
HIGH SPEED DUBBING
CD SYNCHRO
CHROME
CD
TUNER
TAPE 12
AUX
1G
a
b
c
d
e
f
g
h
k
m
n
p

ANODE CONNECTION

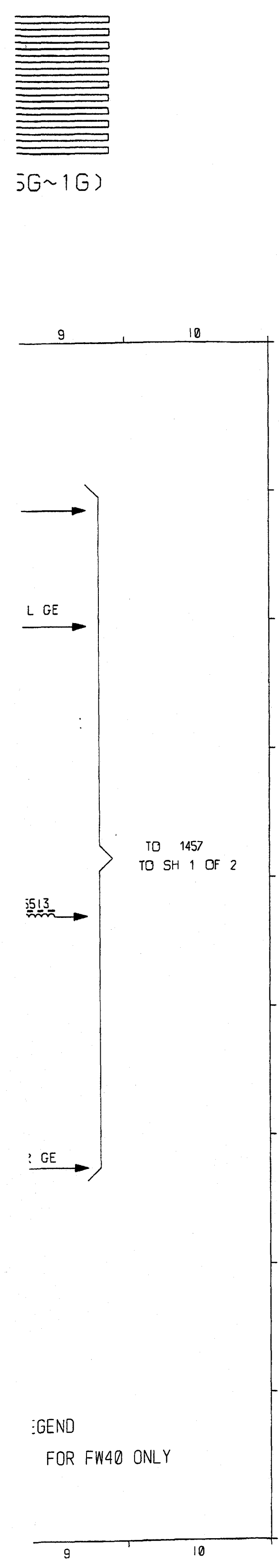
	5G	4G	3G	2G	1G
P1	B1	B1	B1	B1	B1
P2	B2	B2	B2	B2	B2
P3	B3	B3	B3	B3	B3
P4	B4	B4	B4	B4	B4
P5	B5	B5	B5	B5	B5
P6	B6	B6	B6	B6	B6
P7	B7	B7	B7	B7	B7
P8	B8	B8	B8	B8	B8
P9	B9	B9	B9	B9	B9
P10	B10	B10	B10	B10	B10
P11	B11	B11	B11	B11	B11
P12	S1	S1	S1	S1	S1


1402
CONNECTION
PIN NO.
AC 2
AC 1
3406 5E6
3407 5E6
+5V
7466 BC546
7465 BC546
7464 BC546
7463 BC546
7462 BC546
3454 1k
3453 1k
3452 1k
3451 1k
3450 1k
-30V
P64 (38)
P63 (37)
P62 (36)
P61 (35)
P60 (34)
(65) P97
(64) P96
(63) P95
(62) P94

LEGEND
Fx = FILAMENT
Px = ANODE
xG = GRID
NC = NO CONNECTION
NP = NO PIN

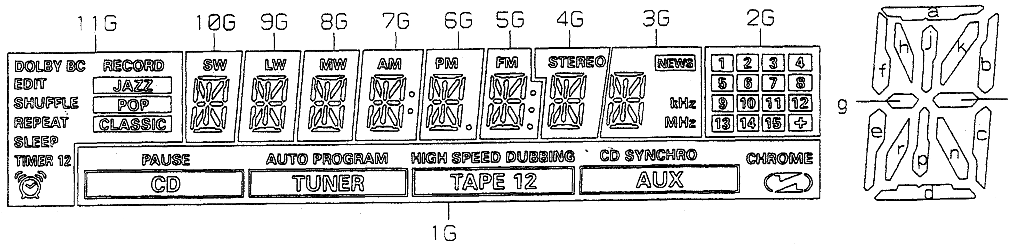
NOTE:
USE ALSO 3139 118 80930
SH132-3

NOT
NUM


5G~1G)
9
10
L GE
TO 1457
TO SH 1 OF 2
3513
GE
LEGEND
FOR FW40 ONLY

2513	A	4
2514	E	4
2515	B	4
2516	F	4
2517	C	4
2518	G	4
2519	C	4
2520	H	4
2521	B	5
2522	F	5
2523	B	5
2524	F	5
2525	C	5
2526	G	5
2527	D	5
2528	H	5
2529	D	4
2530	H	4
2531	B	7
2532	G	6
2533	D	7
2534	H	6
2535	D	7
2536	H	7
2537	A	6
2538	A	6
2539	B	8
2541	B	8
2542	G	8
2543	D	5
2544	I	5
3501	B	2
3502	G	2
3503	D	4
3504	H	4
3505	B	7
3506	F	6
3507a	A	3
3507b	E	3
3508a	B	3
3508b	F	3
3509a	C	3
3509b	G	3
3510a	C	3
3510b	H	3
3511a	D	3
3511b	H	3
3513	A	4
3514	E	4
3515	B	4
3516	F	4
3517	C	4
3518	G	4
3519	C	4
3520	H	4
3521	A	5
3522	E	5
3523	B	5
3524	F	5
3525	C	5
3526	G	5
3527	C	5
3528	H	5
3529	D	5
3530	H	5
3533	E	5
3534	I	5
3535	C	7
3536	G	7
3537	A	7
3538	A	6
3544	A	7
5511	B	9
5512	G	8
5513	E	9
7539a	B	7
7539b	F	7

GRID ASSIGNMENT

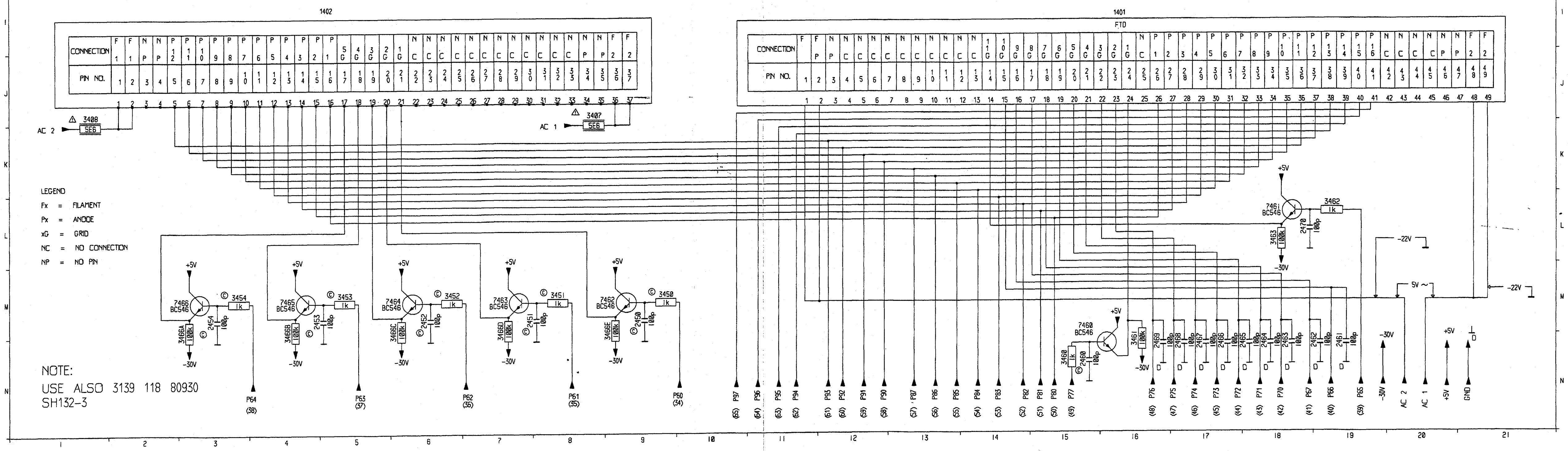

11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
DOLBY BC
RECORD
EDIT
JAZZ
SHUFFLE
POP
REPEAT
CLASSIC
SLEEP
TIMER 12
SW
LW
MW
AM
PM
FM
STEREO
NEWS
1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 +
kHz
MHz
PAUSE
AUTO PROGRAM
HIGH SPEED DUBBING
CD SYNCHRO
CHROME
CD
TUNER
TAPE 12
AUX
1G
a
b
c
d
e
f
g
h
j
k
m
n
p
r

ANODE CONNECTION

	5G	4G	3G	2G	1G
P1	B1	B1	B1	B1	B1
P2	B2	B2	B2	B2	B2
P3	B3	B3	B3	B3	B3
P4	B4	B4	B4	B4	B4
P5	B5	B5	B5	B5	B5
P6	B6	B6	B6	B6	B6
P7	B7	B7	B7	B7	B7
P8	B8	B8	B8	B8	B8
P9	B9	B9	B9	B9	B9
P10	B10	B10	B10	B10	B10
P11	B11	B11	B11	B11	B11
P12	S1	S1	S1	S1	S1

ANODE CONNECTION

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	⏰	a	a	a	a	a	a	a	a	1	PAUSE
P2	TIMER	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p	2	AUTO
P3	1	k	k	k	k	k	k	k	k	3	PROGRAM
P4	2	h	h	h	h	h	h	h	h	4	HIGH SPEED
P5	SLEEP	b	b	b	b	b	b	b	b	5	DUBBING
P6	REPEAT	f	f	f	f	f	f	f	f	6	CD SYNCHRO
P7	SHUFFLE	m	m	m	m	m	m	m	m	7	CHROME
P8	EDIT	g	g	g	g	g	g	g	g	8	(
P9	DOLBY	c	c	c	c	c	c	c	c	9	
P10	B	e	e	e	e	e	e	e	e	10	)
P11	C	r	r	r	r	r	r	r	r	11	AUX
P12	RECORD	n	n	n	n	n	n	n	n	12	TAPE
P13	JAZZ	d	d	d	d	d	d	d	d	13	1
P14	POP	SW	LW	MW	AM	PM	FM	STEREO	NEWS	14	2
P15	CLASSIC	–	–	–	○ ○	○	● ● ○	–	MHz	15	TUNER
P16	–	–	–	–	–	–	○ ○ ●	–	kHz	+	CD


1402
CONNECTION
PIN NO.
1401
FTD
3408
5E6
AC 2
3407
5E6
AC 1
LEGEND
Fx = FILAMENT
Px = ANODE
xG = GRID
NC = NO CONNECTION
NP = NO PIN
+5V
7466
BC546
3454
1k
2454
100p
3466A
100k
-30V
7465
BC546
3453
2453
3466B
7464
BC546
3452
2452
3466C
7463
BC546
3451
2451
3466D
7462
BC546
3450
2450
3466E
P64 (38)
P63 (37)
P62 (36)
P61 (35)
P60 (34)
7461
BC546
3462
1k
2470
3463
-22V
5V
-22V
7460
BC546
3460
3461
2460
2461
2462
2463
2464
2465
2466
2467
2468
2469
P97
P96
P95
P94
P93
P92
P91
P90
P87
P86
P85
P84
P83
P82
P81
P80
P77
P76
P75
P74
P73
P72
P71
P70
P67
P66
P65
-30V
AC 2
AC 1
+5V
GND

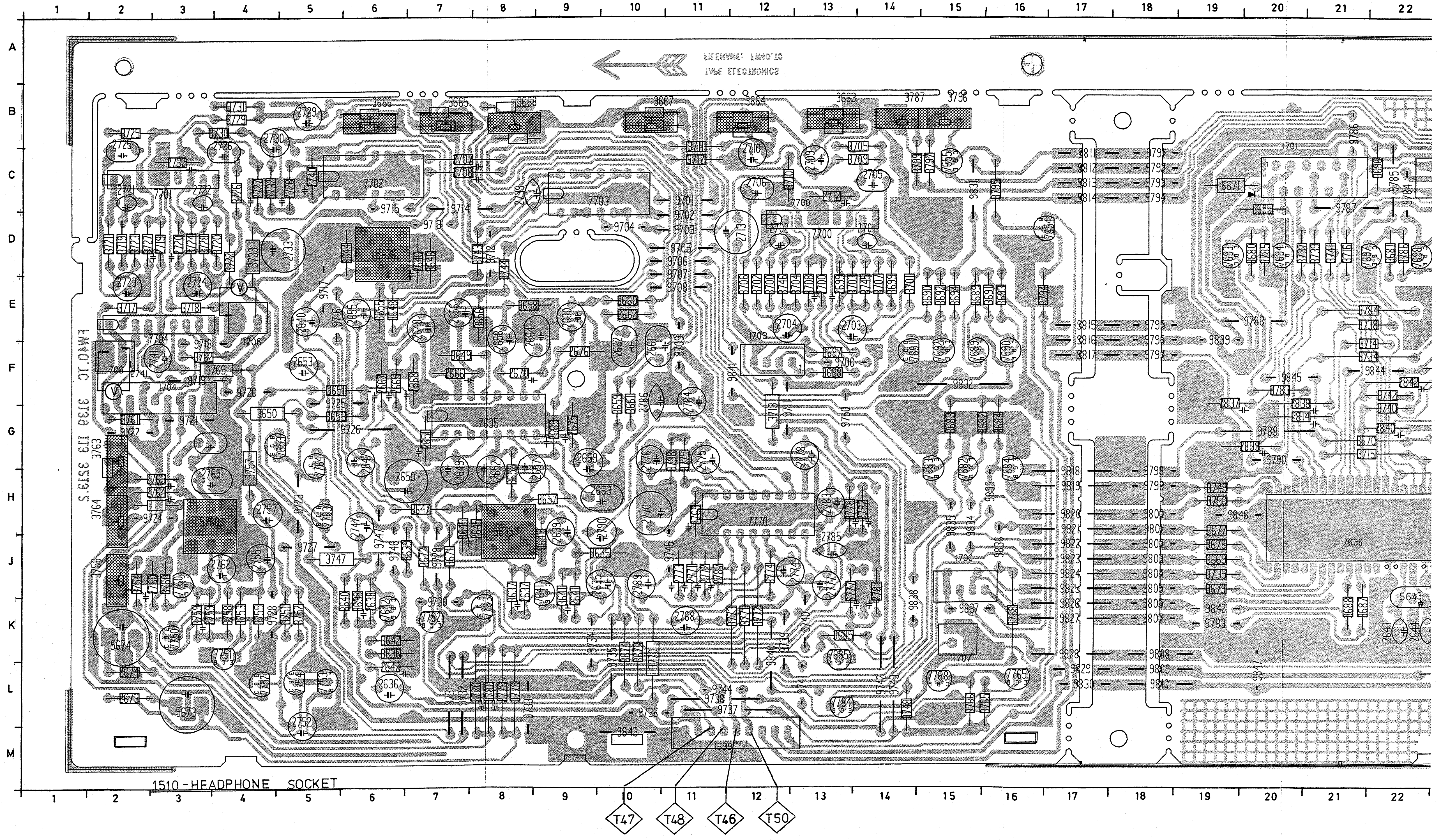
NOTE:
USE ALSO 3139 118 80930
SH132-3

NOTE:
NUMBER IN (**) ARE PIN NUMBER OF 7400

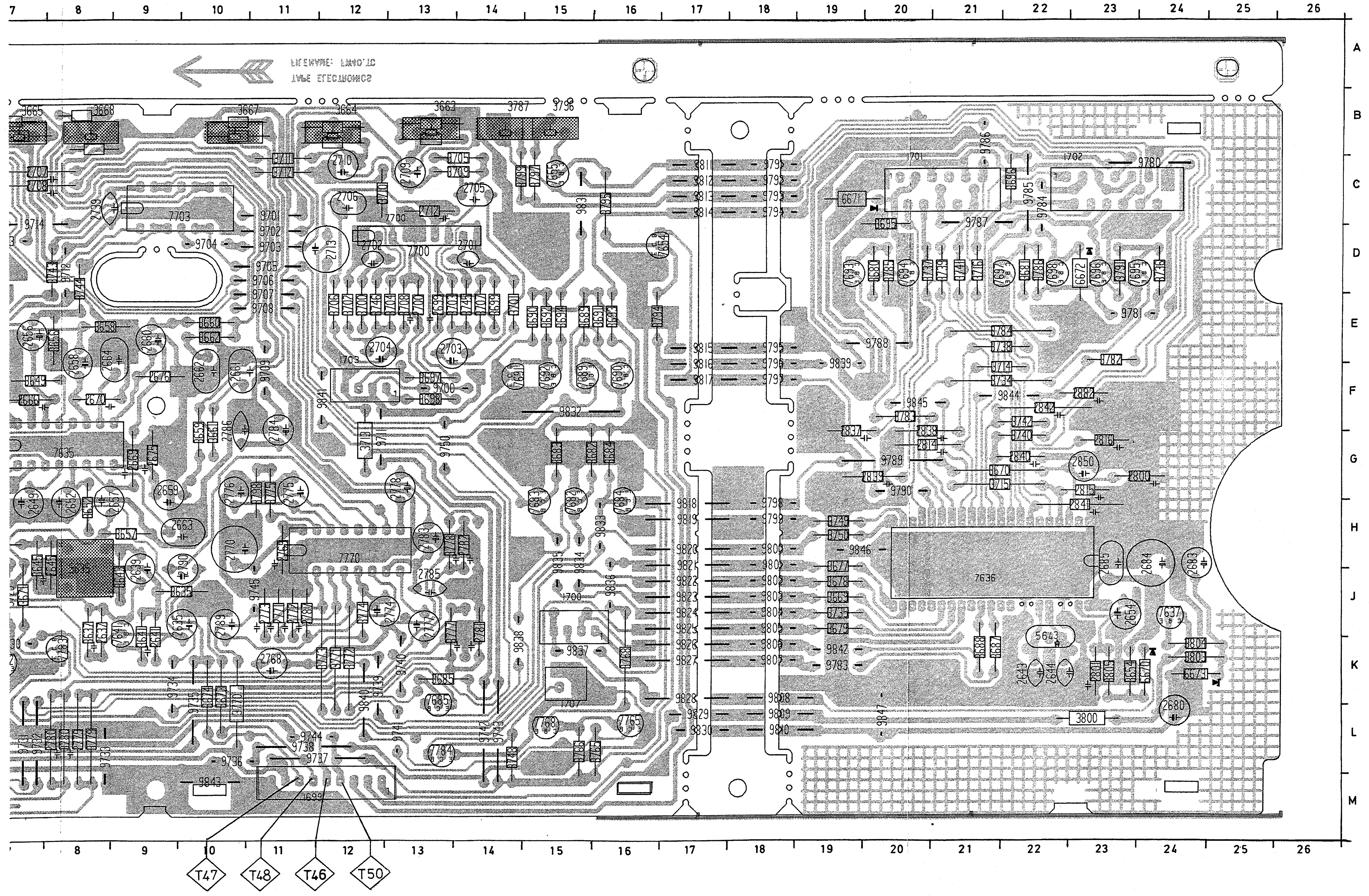
1401	I	16
1402	I	5
2450	M	9
2451	M	7
2452	M	6
2453	M	4
2454	M	3
2460	N	15
2461	N	19
2462	N	19
2463	N	18
2464	N	18
2465	N	18
2466	N	17
2467	N	17
2468	N	17
2469	N	16
2470	L	18
3407	J	8
3408	J	1
3450	M	9
3451	M	8
3452	M	6
3453	M	5
3454	M	3
3460	N	15
3461	N	16
3462	L	19
3463	L	18
3466A	M	3
3466B	M	4
3466C	M	6
3466D	M	7
3466E	M	9
7460	M	15
7461	L	18
7462	M	9
7463	M	7
7464	M	6
7465	M	4
7466	M	3

TAPE CORE LAYOUT

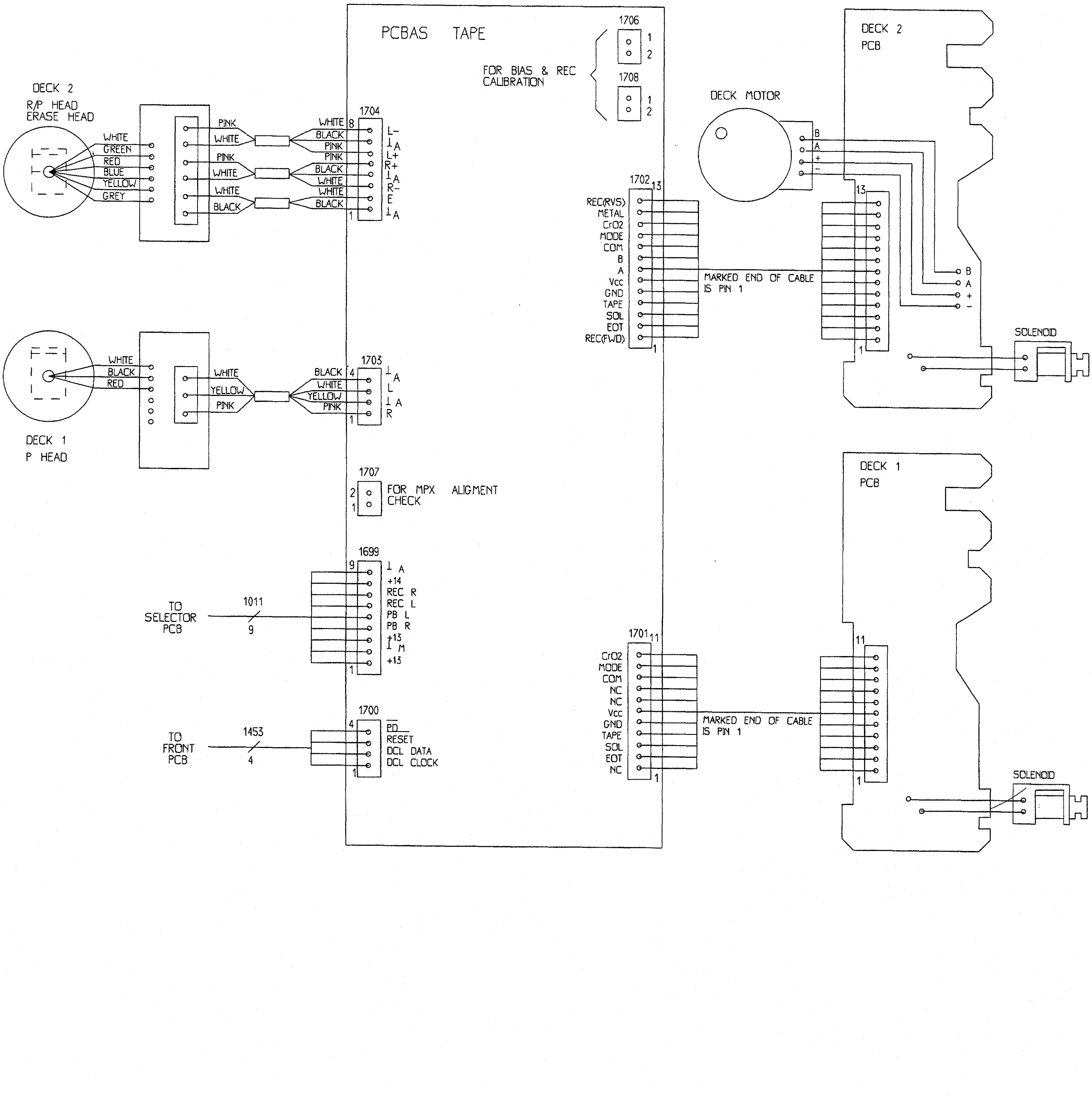
1699	M11	2643	K22	2659	G9	2680	L24	2712	C13	2739	C8	2771	J11	2787	J11	3646	D7	3662	E10	3680	D20	3697	F13	3713	G12	3729	B4	3745	E14	3762	F3	3780	L8	3804	K24	7653	G5	7698	D22	7770	H12	9713	D7	9729	J7	9745	
1700	J15	2644	K22	2660	E9	2683	H24	2713	C12	2740	C5	2772	J11	2789	J10	3647	H7	3663	B13	3681	D22	3698	F13	3714	F21	3730	B4	3747	J5	3763	H2	3782	F23	5635	H8	7654	D17	7700	D13	7782	K7	9714	C7	9730	J7	9746	
1701	B20	2645	H8	2661	F10	2684	H24	2719	D3	2741	F3	2773	J11	2790	H10	3648	E6	3664	B12	3682	G16	3699	E14	3715	G21	3731	B4	3748	H4	3764	H2	3783	F20	5636	D6	7655	C15	7701	C3	7783	K8	9715	C6	9731	L7	9747	
1702	B22	2646	D7	2662	F10	2685	H23	2720	D3	2747	J6	2774	J13			3649	F7	3665	B7	3683	G15	3700	E12	3716	D21	3732	C4	3749	H19	3765	L15	3784	E21	5643	J22	7682	H15	7702	C6	7784	L13	9716	E6	9732	L7	9750	
1703	E12	2647	G6	2663	H9	2699	E13	2721	C2	2752	L5	2775	G11			3650	G5	3666	B6	3684	G16	3701	E14	3717	E2	3733	D4	3750	H19	3766	L15	3785	D20	5673	L3	7683	H15	7703	C9	9700	F13	9717	E5	9733	L8	9780	
1704	F3	2648	E7	2664	E8	2700	E13	2722	C3	2755	J4	2776	G10	3635	J10	3651	F6	3667	B10	3685	K13	3702	E12	3718	E3	3734	F21	3751	K5	3768	K16	3786	D22	5674	K2	7684	H16	7704	E3	9701	C11	9718	F3	9734	K10	9781	
1706	E4	2649	H7	2665	F6	2701	D14	2723	E2	2757	H4	2777	J13	3636	K6	3652	H8	3668	B8	3687	K21	3703	E13	3719	D2	3735	J19	3752	K5	3769	F3	3787	B14	5760	H3	7685	K13	7750	K3	9702	C11	9719	F3	9735	K10	9783	
1708	F2	2650	H7	2666	F7	2702	D12	2724	E3	2759	K3	2778	G13	3637	J8	3653	G6	3669	J19	3688	K21	3704	E12	3720	D4	3736	D24	3753	K4	3770	K10	3791	D23	6670	K24	7689	F15	7751	K4	9703	D11	9720	F4	9736	L10	9784	
2635	J10	2651	G7	2667	F6	2703	E13	2725	B2	2760	J3	2779	L8	3638	K6	3654	K23	3670	G21	3689	E15	3705	C13	3721	D2	3737	D20	3754	J2	3771	K12	3794	E16	6671	C19	7690	F16	7752	L4	9704	D10	9721	G3	9737	L12	9785	
2636	L6	2652	H8	2668	F7	2704	E12	2726	B4	2762	J4	2780	L8	3639	J6	3655	E6	3671	J7	3690	E15	3706	E12	3722	D4	3738	E21	3755	K4	3772	K12	3795	C16	6672	D22	7691	F14	7753	L5	9705	D11	9722	G2	9738	L11	9786	
2637	J8	2653	F5	2669	G9	2705	C14	2727	C4	2763	H3	2781	J14	3640	K6	3656	E8	3672	J7	3691	E16	3707	E14	3723	D2	3739	D21	3756	J2	3773	K12	3796	B15	6673	K24	7692	F15	7754	L5	9706	D11	9723	H5	9739	K12	9787	
2638	K6	2654	J23	2670	F8	2706	C12	2728	C5	2764	H3	2782	H14	3641	J9	3657	H9	3673	K10	3692	E15	3708	E13	3724	D3	3740	G22	3757	H4	3774	J12	3797	C15	7635	G8	7693	D19	7760	J3	9707	D11	9724	H2	9740	K13	9788	
2639	J9	2655	E6	2673	L2	2707	C7	2729	B5	2765	H3	2783	H13	3642	K6	3658	E8	3674	K10	3693	E16	3709	C13	3725	B2	3741	D21	3758	K4	3775	G11	3798	H11	7636	J21	7694	D20	7763	H5	9708	F11	9725	G6	9741	L13	9789	
2640	E5	2656	E7	2674	L2	2708	C7	2730	B4	2768	K11	2784	F11	3643	J9	3659	F10	3677	H19	3694	E15	3710	C12	3726	C4	3742	F22	3759	K3	3777	J13	3799	C14	7637	J24	7695	D23	7764	H6	9709	F11	9726	G6	9742	L14	9790	
2641	J9	2657	H9	2675	G9	2709	C13	2732	B3	2769	H11	2785	J13	3644	D6	3660	E10	3678	J19	3695	C20	3711	B11	3727	D2	3743	D8	3760	J3	3778	H13	3800	L23	7641	J9	7696	D23	7765	L16	9711	G12	9727	J5	9743	L14	9791	
2642	L6	2658	E8	2676	E9	2710	C12	2733	D5	2770	H10	2786	F10	3645	H7	3661	F10	3679	J19	3696	C22	3712	C11	3728	D3	3744	D8	3761	G2	3779	L8	3803	K24	7642	K6	7697	D22	7768	L15	9712	D8	9728	K4	9744	L11	9792	



2787	J11	3646	D7	3662	E10	3680	D20	3697	F13	3713	G12	3729	B4	3745	E14	3762	F3	3780	L8	3804	K24	7653	G5	7698	D22	7770	H12	9713	D7	9729	J7	9745	J11	9793	C18	9809	L18	9825	J17	9841	F11	2800	G24
2789	J10	3647	H7	3663	B13	3681	D22	3698	F13	3714	F21	3730	B4	3747	J5	3763	H2	3782	F23	5635	H8	7654	D17	7700	D13	7782	K7	9714	C7	9730	J7	9746	J6	9794	C18	9810	L18	9826	K17	9842	K19	2801	K23
2790	H10	3648	E6	3664	B12	3682	G16	3699	E14	3715	G21	3731	B4	3748	H4	3764	H2	3783	F20	5636	D6	7655	C15	7701	C3	7783	K8	9715	C6	9731	L7	9747	J6	9795	E18	9811	C17	9827	K17	9844	F22	2814	G21
		3649	F7	3665	B7	3683	G15	3700	E12	3716	D21	3732	C4	3749	H19	3765	L15	3784	E21	5643	J22	7682	H15	7702	C6	7784	L13	9716	E6	9732	L7	9750	G13	9796	E18	9812	C17	9828	K17	9845	F20	2815	G23
		3650	G5	3666	B6	3684	G16	3701	E14	3717	E2	3733	D4	3750	H19	3766	L15	3785	D20	5673	L3	7683	H15	7703	C9	9700	F13	9717	E5	9733	L8	9780	C24	9797	F18	9813	C17	9829	L17	9846	H19	2816	G23
3635	J10	3651	F6	3667	B10	3685	K13	3702	E12	3718	E3	3734	F21	3751	K5	3768	K16	3786	D22	5674	K2	7684	H16	7704	E3	9701	C11	9718	F3	9734	K10	9781	E23	9798	H18	9814	C17	9830	L17			2837	F19
3636	K6	3652	H8	3668	B8	3687	K21	3703	E13	3719	D2	3735	J19	3752	K5	3769	F3	3787	B14	5760	H3	7685	K13	7750	K3	9702	C11	9719	F3	9735	K10	9783	K19	9799	H18	9815	E17	9831	C15			2838	F20
3637	J8	3653	G6	3669	J19	3688	K21	3704	E12	3720	D4	3736	D24	3753	K4	3770	K10	3791	D23	6670	K24	7689	F15	7751	K4	9703	D11	9720	F4	9736	L10	9784	C22	9800	H18	9816	F17	9832	F15			2839	G20
3638	K6	3654	K23	3670	G21	3689	E15	3705	C13	3721	D2	3737	D20	3754	J2	3771	K12	3794	E16	6671	C19	7690	F16	7752	L4	9704	D10	9721	G3	9737	L12	9785	C22	9801	H18	9817	F17	9833	H16			2840	G22
3639	J6	3655	E6	3671	J7	3690	E15	3706	E12	3722	D4	3738	E21	3755	K4	3772	K12	3795	C16	6672	D22	7691	F14	7753	L5	9705	D11	9722	G2	9738	L11	9786	B21	9802	J18	9818	H17	9834	H15			2841	G23
3640	K6	3656	E8	3672	J7	3691	E16	3707	E14	3723	D2	3739	D21	3756	J2	3773	K12	3796	B15	6673	K24	7692	F15	7754	L5	9706	D11	9723	H5	9739	K12	9787	C21	9803	J18	9819	H17	9835	H15			2842	F22
3641	J9	3657	H9	3673	K10	3692	E15	3708	E13	3724	D3	3740	G22	3757	H4	3774	J12	3797	C15	7635	G8	7693	D19	7760	J3	9707	D11	9724	H2	9740	K13	9788	E20	9804	J18	9820	H17	9836	J16			2850	G23
3642	K6	3658	E8	3674	K10	3693	E16	3709	C13	3725	B2	3741	D21	3758	K4	3775	G11	3798	H11	7636	J21	7694	D20	7763	H5	9708	F11	9725	G6	9741	L13	9789	G20	9805	J18	9821	H17	9837	K15			2882	F23
3643	J9	3659	F10	3677	H19	3694	E15	3710	C12	3726	C4	3742	F22	3759	K3	3777	J13	3799	C14	7637	J24	7695	D23	7764	H6	9709	F11	9726	G6	9742	L14	9790	G20	9806	K18	9822	J17	9838	K14				
3644	D6	3660	E10	3678	J19	3695	C20	3711	B11	3727	D2	3743	D8	3760	J3	3778	H13	3800	L23	7641	J9	7696	D23	7765	L16	9711	G12	9727	J5	9743	L14	9791	C18	9807	K18	9823	J17	9839	F19				
3645	H7	3661	F10	3679	J19	3696	C22	3712	C11	3728	D3	3744	D8	3761	G2	3779	L8	3803	K24	7642	K6	7697	D22	7768	L15	9712	D8	9728	K4	9744	L11	9792	C18	9808	K18	9824	J17	9840	K12	1707	K15	3805	K23



TAPE WIRING


PCBAS TAPE
1706
1
2
FOR BIAS & REC CALIBRATION
1708
1
2
DECK 2
R/P HEAD
ERASE HEAD
WHITE
GREEN
RED
BLUE
YELLOW
GREY
PINK
WHITE
PINK
WHITE
WHITE
BLACK
1704
WHITE
BLACK
PINK
PINK
BLACK
WHITE
WHITE
BLACK
8
1
L−
⊥A
L+
R+
⊥A
R−
E
⊥A
DECK MOTOR
B
A
+
−
DECK 2
PCB
1702
13
1
REC(RVS)
METAL
CrO2
MODE
COM
B
A
Vcc
GND
TAPE
SOL
EOT
REC(FWD)
MARKED END OF CABLE IS PIN 1
13
1
B
A
+
−
SOLENOID
WHITE
BLACK
RED
DECK 1
P HEAD
WHITE
YELLOW
PINK
1703
BLACK
WHITE
YELLOW
PINK
4
1
⊥A
L
⊥A
R
1707
2
1
FOR MPX ALIGMENT CHECK
1699
9
1
⊥ A
+14
REC R
REC L
PB L
PB R
⊥13
⊥ M
+13
TO SELECTOR PCB
1011
9
1700
4
1
PD
RESET
DCL DATA
DCL CLOCK
TO FRONT PCB
1453
4
DECK 1
PCB
1701
11
1
CrO2
MODE
COM
NC
NC
Vcc
GND
TAPE
SOL
EOT
NC
MARKED END OF CABLE IS PIN 1
11
1
SOLENOID

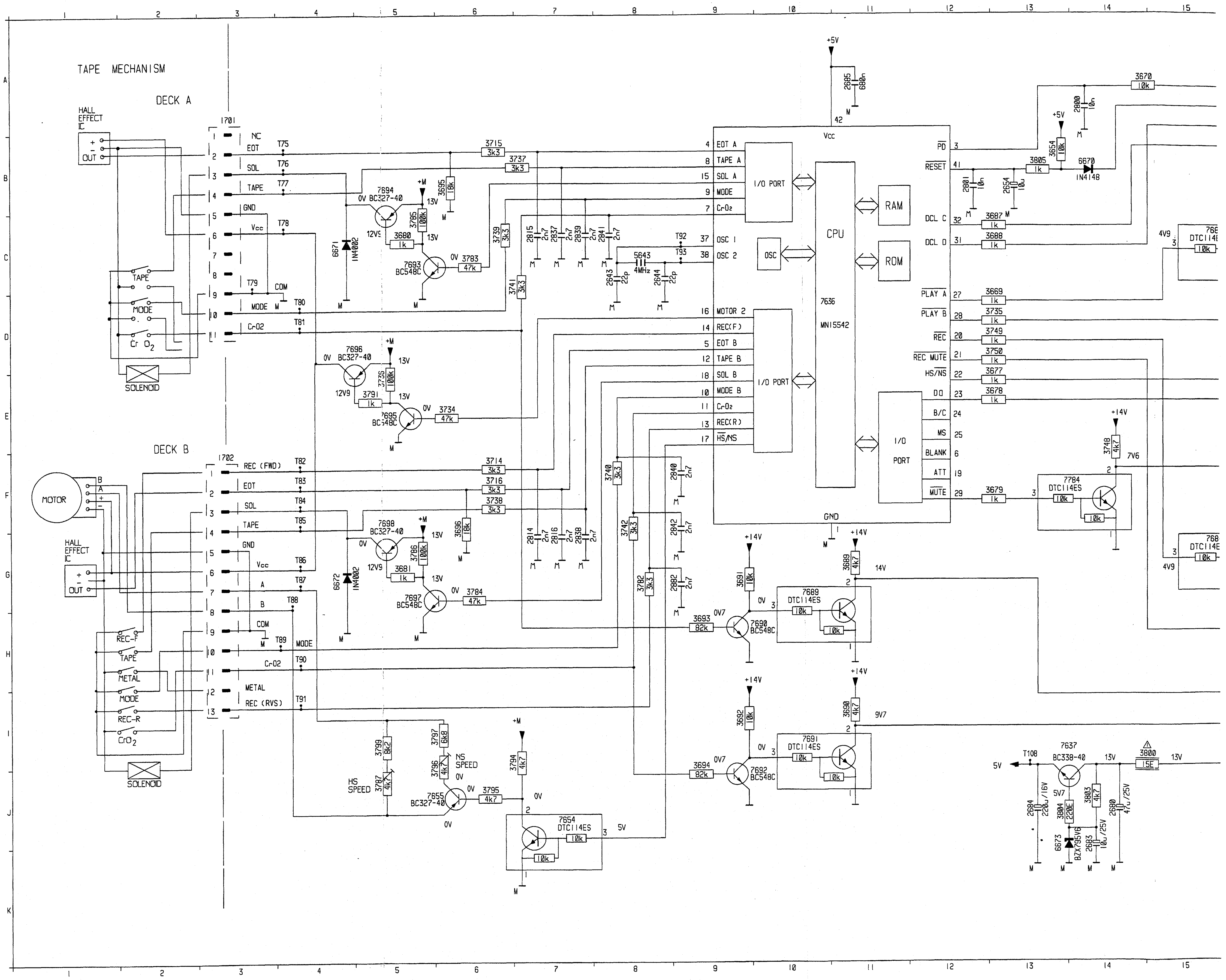
TAPE ADJUSTMENT

Adjustment	Cassette signal	Injection point	Recorder position		Measure at	Measure Across	Read on	Adjust with	Adjust to
			PB Deck	R/P Deck					
Motor speed	3150Hz SBC 420*		High speed dubbing		1510		Wow and Flutter meter	3787	5355Hz ± 80Hz
			Play Fwd	-	1510			3796	3150Hz ± 45Hz #1
Dolby Level (Playback)	400Hz TTC 130***		Play Fwd	-	T46		mV-meter	3663	300mV
					T50			3664	
			-	Play Fwd	T46			3665	
					T50			3666	
Azimuth	12.5kHz SBC 420*		Play Fwd	-	1510		mV-meter	Left hand screw play head	Max. L = R
			Play Rev	-	1510			Right hand screw play head	
			-	Play Fwd	1510			Left hand screw R/P head	
			-	Play Rev	1510			Right hand screw R/P head	
Bias current	SBC 419**		-	Record Chrome		3761	mV-meter	3763	7.0mV
						3762		3764	
	SBC 420*		-	Record		3761 or 3762		3756	4.4mV #2
Recording playback level	400Hz TCC 130*** and SBC 419**		Play	Record Chrome		3761	mV-meter	3667	0.68mV #3
						3762		3668	
			-	Playback	T46			check	300mV ± 17mV
					T50				
	400Hz TCC 130*** and SBC 420*		Play	Record		3761		3667	0.45mV #3
						3762		3668	
			-	Playback	T46			check	300mV ± 17mV
					T50				
Oscillator Frequency	SBC 420*			Record		3761	Frequency counter	5760	88kHz ± 4kHz
Multiplex Filter	400Hz	T48	-	Record	T46		mV-meter	Adjust Generator	300mV
		T47			T50				
	19kHz	T48			T46			5635 5636	min. < 3mV
		T47			T50				

* SBC 420 : 4822 397 30071
** SBC 419 : 4822 397 30069
*** TCC 130 : 4822 397 30144 (dolby level adj, 200nWB/m)
#1 The wow and flutter value should not exceeds 0.4% DIN.
#2 Adjustment for Chrome must be done before Ferro.
#3 Repeat until Rec/Playback level is achieved.

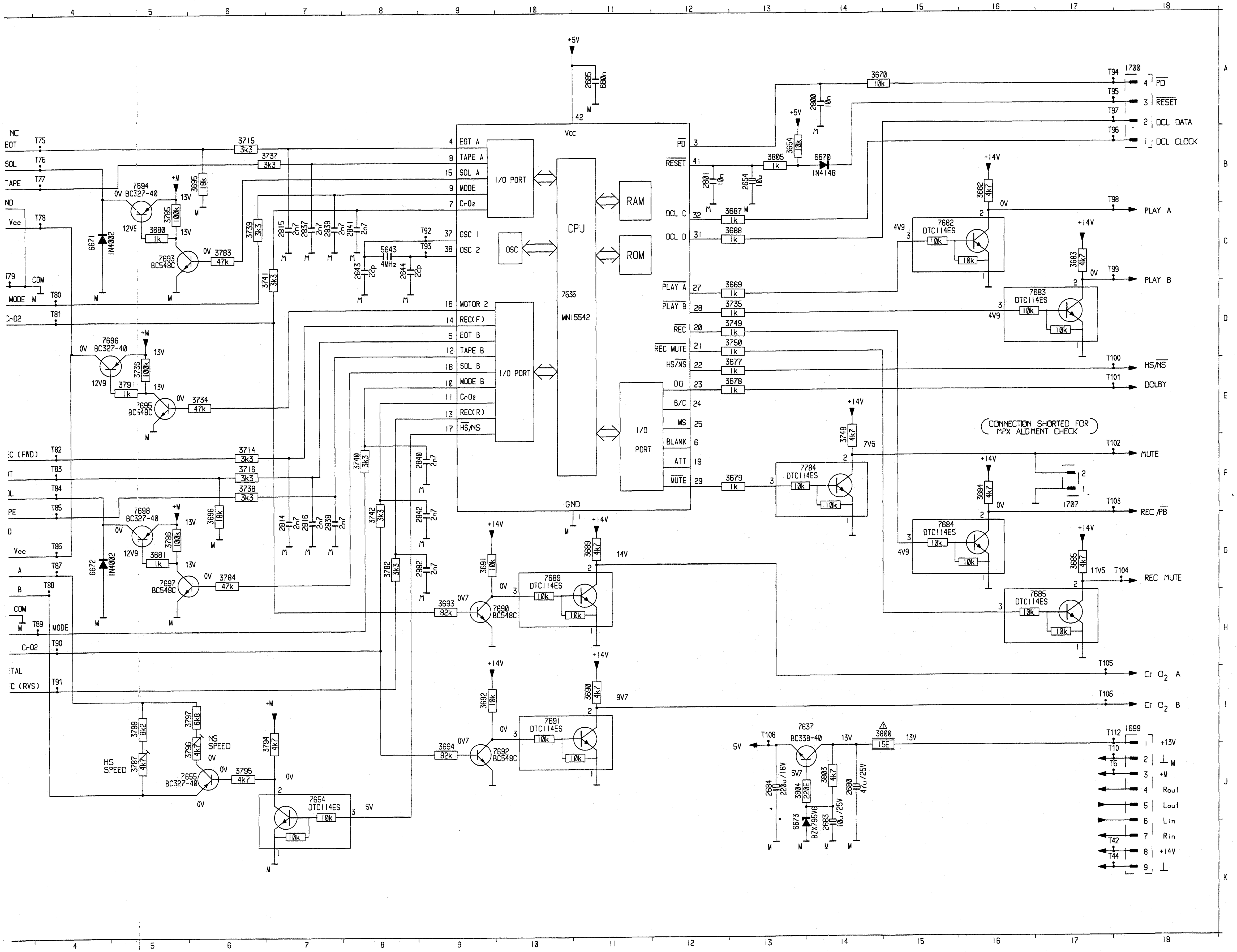
TAPE CORE CIRCUIT I

1699	I18
1699	J18
1699	J18
1699	J18
1699	J18
1699	J18
1699	K18
1699	K18
1699	K18
1700	A18
1700	A18
1700	A18
1700	B18
1701	A 3
1701	B 3
1701	B 3
1701	B 3
1701	B 3
1701	C 3
1701	C 3
1701	C 3
1701	C 3
1701	D 3
1701	D 3
1702	F 3
1702	F 3
1702	F 3
1702	F 3
1702	G 3
1702	G 3
1702	G 3
1702	G 3
1702	H 3
1702	H 3
1702	H 3
1702	H 3
1702	H 3
1707	F17
2643	C 8
2644	C 8
2654	B13
2680	J14
2683	K14
2684	J13
2685	A11
2800	A14
2801	B12
2814	G 7
2815	C 7
2816	G 7
2837	C 7
2838	F 8
2839	C 7
2840	F 8
2841	C 8
3685	G17
3687	C13
3688	C13
3689	G11
3690	I11
2842	F 9
2882	G 9
3654	B13
3669	D13
3670	A14
3677	E13
3678	E13
3679	F13
3680	C 5
3681	G 5
3682	B16
3683	C17
3684	F16
3691	G 9
3692	I 9
3693	H 9
3694	I 9
3695	B 6
3696	F 6
3714	F 6
3715	B 6
3716	F 6
3734	E 6
3735	D13
3736	E 5
3737	B 7
3738	F 6
3739	C 7
3740	F 8
3741	C 7
3742	G 8
3749	D13
3750	D13
3748	E14
3782	G 8
3783	C 6
3784	G 6
3785	C 5
3786	G 5
3787	I 5
3791	E 5
3794	I 6
3795	J 6
3796	I 5
3797	I 5
3799	J 5
3800	J14
3803	J14
3804	J13
5643	C 8
6670	B14
6671	C 4
6672	G 4
6673	K13
7636	D11



TAPE MECHANISM
DECK A
HALL EFFECT IC
OUT
1701
NC
EOT
SOL
TAPE
GND
Vcc
COM
MODE
Cr-O2
T75
T76
T77
T78
T79
T80
T81
TAPE
MODE
Cr O2
SOLENOID
3715 3k3
3737 3k3
3695 10k
3785 100k
3680 1k
3783 47k
3739 3k3
3741 3k3
7694 BC327-40
7693 BC548C
6671 1N4002
7696 BC327-40
7695 BC548C
3735 100k
3791 1k
3734 47k
+M
13V
12V9
0V
2815 2n7
2837 2n7
2839 2n7
2841 2n7
2643 22p
2644 22p
5643 4MHz
T92
T93
DECK B
MOTOR
HALL EFFECT IC
1702
REC (FWD)
EOT
SOL
TAPE
GND
Vcc
A
B
COM
MODE
Cr-O2
METAL
REC (RVS)
T82
T83
T84
T85
T86
T87
T88
T89
T90
T91
REC-F
TAPE
METAL
MODE
REC-R
CrO2
SOLENOID
3714 3k3
3716 3k3
3738 3k3
3696 18k
3786 100k
3681 1k
3784 47k
7698 BC327-40
7697 BC548C
6672 1N4002
3740 3k3
3742 3k3
3782 3k3
2840 2n7
2842 2n7
2882 2n7
2814 2n7
2816 2n7
2838 2n7
3799 8k2
3787 4k7
HS SPEED
3797 6k8
3796 4k7
NS SPEED
7655 BC327-40
3795 4k7
3794 4k7
7654 DTC114ES
10k
5V
+5V
2685 680n
42
Vcc
4 EOT A
8 TAPE A
15 SOL A
9 MODE
7 Cr-O2
37 OSC 1
38 OSC 2
16 MOTOR 2
14 REC(F)
5 EOT B
12 TAPE B
18 SOL B
10 MODE B
11 Cr-O2
13 REC(R)
17 HS/NS
I/O PORT
OSC
CPU
RAM
ROM
7636
MN15542
I/O PORT
GND
PD 3
RESET 41
DCL C 32
DCL D 31
PLAY A 27
PLAY B 28
REC 20
REC MUTE 21
HS/NS 22
DO 23
B/C 24
MS 25
BLANK 6
ATT 19
MUTE 29
3670 10k
2800 10n
3654 10k
3805 1k
6670 1N4148
2801 10n
2654 10u
3687 1k
3688 1k
3669 1k
3735 1k
3749 1k
3750 1k
3677 1k
3678 1k
3679 1k
3748 4k7
7784 DTC114ES
7V6
+14V
3691 10k
3693 82k
7690 BC548C
3689 4k7
7689 DTC114ES
14V
0V7
3692 10k
3694 82k
7692 BC548C
3690 4k7
7691 DTC114ES
9V7
7637 BC338-40
T108
3800 15E
13V
5V
5V7
2684 220u/16V
3804 220E
3803 4k7
2680 47u/25V
2683 10u/25V
6673 BZX79
4V9
DTC114E

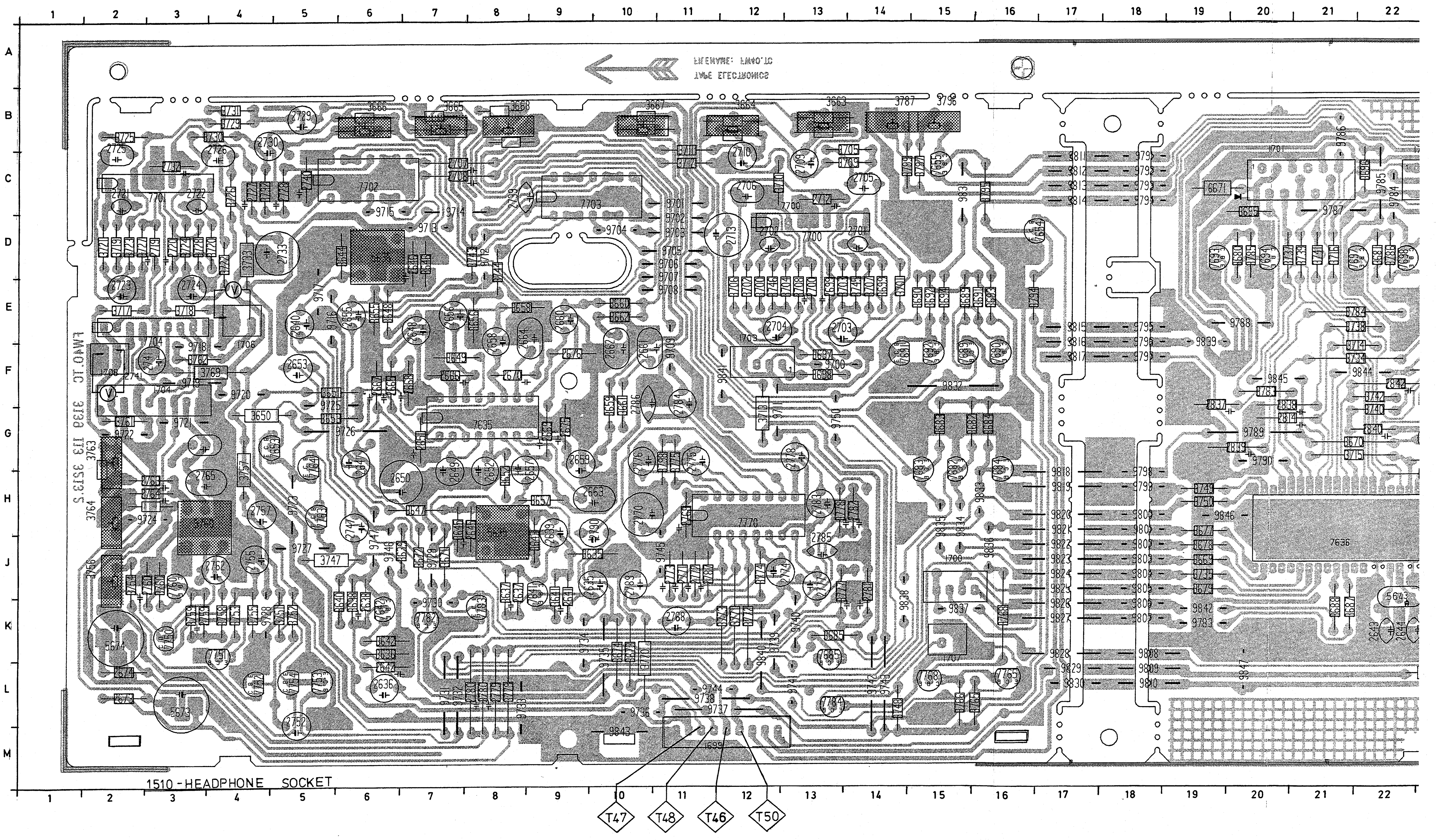
3	1702	F 3	1702	G 3	1702	H 3	2654	B13	2800	A14	2837	C 7	3685	G17	2842	F 9	3677	E13	3682	B16	3693	H 9	3715	B 6	3737	B 7	3742	G 8	3783	C 6	3791	E 5	3799	J 5	6670	B14	7637	J13	7684	G16	7692	J 9	7697	G 5
3	1702	F 3	1702	G 3	1702	H 3	2680	J14	2801	B12	2838	F 8	3687	C13	2882	G 9	3678	E13	3683	C17	3694	I 9	3716	F 6	3738	F 6	3749	D13	3784	G 6	3794	I 6	3800	J14	6671	C 4	7654	J 8	7685	H17	7693	C 5	7698	F 5
3	1702	F 3	1702	H 3	1707	F17	2683	K14	2814	G 7	2839	C 7	3688	C13	3654	B13	3679	F13	3684	F16	3695	B 6	3734	E 6	3739	C 7	3750	D13	3785	C 5	3795	J 6	3803	J14	6672	G 4	7655	J 6	7689	G11	7694	B 5		
3	1702	G 3	1702	H 3	2643	C 8	2684	J13	2815	C 7	2840	F 8	3689	G11	3669	D13	3680	C 5	3691	G 9	3696	F 6	3735	D13	3740	F 8	3748	E14	3786	G 5	3796	I 5	3804	J13	6673	K13	7682	C16	7690	H 9	7695	E 5		
3	1702	G 3	1702	H 3	2644	C 8	2685	A11	2816	G 7	2841	C 8	3690	I11	3670	A14	3681	G 5	3692	I 9	3714	F 6	3736	E 5	3741	C 7	3782	G 8	3787	I 5	3797	I 5	5643	C 8	7636	D11	7683	D17	7691	I11	7696	D 4		


4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
K
+5V
2685
680n
42
Vcc
CPU
RAM
ROM
OSC
I/O PORT
I/O PORT
I/O PORT
7636
MN15542
GND
EOT A
TAPE A
SOL A
MODE
Cr-O2
OSC 1
OSC 2
MOTOR 2
REC(F)
EOT B
TAPE B
SOL B
MODE B
Cr-O2
REC(R)
HS/NS
PD
RESET
DCL C
DCL D
PLAY A
PLAY B
REC
REC MUTE
HS/NS
DO
B/C
MS
BLANK
ATT
MUTE
NC
EOT
SOL
TAPE
ND
Vcc
COM
MODE
Cr-O2
T75
T76
T77
T78
T79
T80
T81
T82
T83
T84
T85
T86
T87
T88
T89
T90
T91
3715
3k3
3737
3k3
7694
BC327-40
3695
18k
3785
100k
3680
1k
7693
BC548C
3783
47k
3739
3k3
3741
3k3
6671
1N4002
12V9
13V
0V
+M
2815
2837
2839
2841
2n7
5643
4MHz
2643
2644
22p
T92
T93
7696
BC327-40
3735
100k
3791
1k
7695
BC548C
3734
47k
3714
3k3
3716
3k3
3738
3k3
7698
BC327-40
3696
18k
3786
100k
3681
1k
7697
BC548C
3784
47k
6672
1N4002
2814
2816
2838
3740
3k3
3742
3k3
3782
3k3
2840
2n7
2842
2882
+14V
3691
10k
3693
82k
0V7
7690
BC548C
7689
DTC114ES
10k
3689
4k7
14V
3692
10k
3694
82k
7692
BC548C
7691
DTC114ES
3690
4k7
9V7
3799
8k2
3797
6k8
3796
4k7
NS
SPEED
3787
4k7
HS
SPEED
7655
BC327-40
3795
4k7
+M
3794
4k7
7654
DTC114ES
5V
M
3670
10k
2800
10n
3654
10k
3805
1k
6670
1N4148
2801
10n
2654
10u
3687
1k
3688
1k
3669
1k
3735
1k
3749
1k
3750
1k
3677
1k
3678
1k
3679
1k
3682
4k7
7682
DTC114ES
4V9
3683
4k7
7683
DTC114ES
3748
4k7
7V6
7784
DTC114ES
3684
4k7
7684
DTC114ES
3685
4k7
11V5
7685
DTC114ES
T94
T95
T96
T97
T98
T99
T100
T101
T102
T103
T104
T105
T106
1700
4 PD
3 RESET
2 DCL DATA
1 DCL CLOCK
PLAY A
PLAY B
HS/NS
DOLBY
(CONNECTION SHORTED FOR MPX ALIGMENT CHECK)
MUTE
1707
REC/PB
REC MUTE
Cr O2 A
Cr O2 B
5V
T108
7637
BC338-40
5V7
3800
15E
13V
2684
220u/16V
3804
220E
6673
BZX79C6V
3803
4k7
2683
10u/25V
2680
47u/25V
1699
T112
T10
T6
T42
T44
+13V
M
+M
Rout
Lout
Lin
Rin
+14V

PCS 63 158

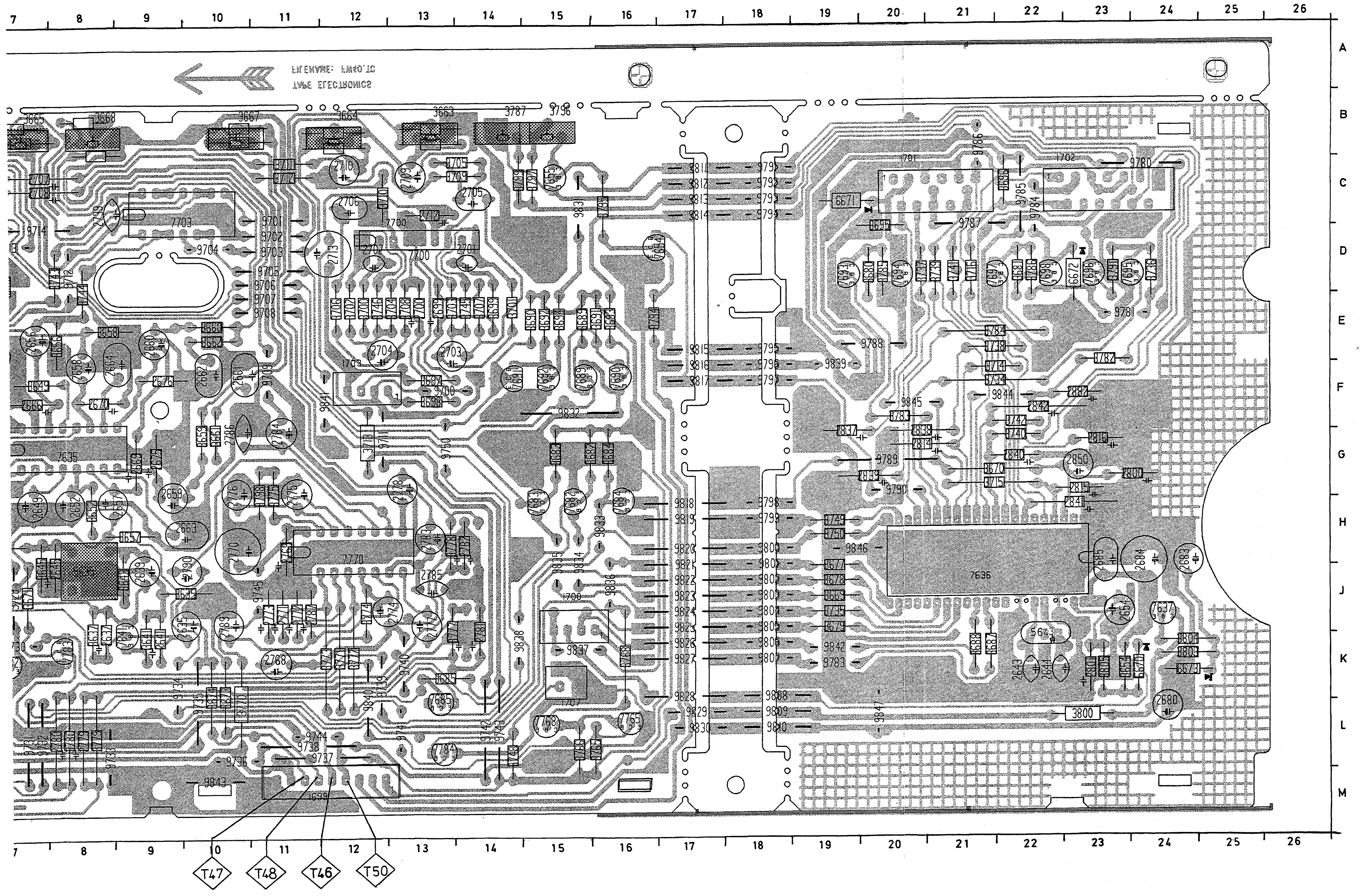
TAPE CORE LAYOUT

1699	M11	2643	K22	2659	G9	2680	L24	2712	C13	2739	C8	2771	J11	2787	J11	3646	D7	3662	E10	3680	D20	3697	F13	3713	G12	3729	B4	3745	E14	3762	F3	3780	L8	3804	K24	7653	G5	7698	D22	7770	H12	9713	D7	9729	J7	9745	J
1700	J15	2644	K22	2660	E9	2683	H24	2713	C12	2740	C5	2772	J11	2789	J10	3647	H7	3663	B13	3681	D22	3698	F13	3714	F21	3730	B4	3747	J5	3763	H2	3782	F23	5635	H8	7654	D17	7700	D13	7782	K7	9714	C7	9730	J7	9746	J
1701	B20	2645	H8	2661	F10	2684	H24	2719	D3	2741	F3	2773	J11	2790	H10	3648	E6	3664	B12	3682	G16	3699	E14	3715	G21	3731	B4	3748	H4	3764	H2	3783	F20	5636	D6	7655	C15	7701	C3	7783	K8	9715	C6	9731	L7	9747	J
1702	B22	2646	D7	2662	F10	2685	H23	2720	D3	2747	J6	2774	J13			3649	F7	3665	B7	3683	G15	3700	E12	3716	D21	3732	C4	3749	H19	3765	L15	3784	E21	5643	J22	7682	H15	7702	C6	7784	L13	9716	E6	9732	L7	9750	G
1703	E12	2647	G6	2663	H9	2699	E13	2721	C2	2752	L5	2775	G11			3650	G5	3666	B6	3684	G16	3701	E14	3717	E2	3733	D4	3750	H19	3766	L15	3785	D20	5673	L3	7683	H15	7703	C9	9700	F13	9717	E5	9733	L8	9780	C
1704	F3	2648	E7	2664	E8	2700	E13	2722	C3	2755	J4	2776	G10	3635	J10	3651	F6	3667	B10	3685	K13	3702	E12	3718	E3	3734	F21	3751	K5	3768	K16	3786	D22	5674	K2	7684	H16	7704	E3	9701	C11	9718	F3	9734	K10	9781	E
1706	E4	2649	H7	2665	F6	2701	D14	2723	E2	2757	H4	2777	J13	3636	K6	3652	H8	3668	B8	3687	K21	3703	E13	3719	D2	3735	J19	3752	K5	3769	F3	3787	B14	5760	H3	7685	K13	7750	K3	9702	C11	9719	F3	9735	K10	9783	K
1708	F2	2650	H7	2666	F7	2702	D12	2724	E3	2759	K3	2778	G13	3637	J8	3653	G6	3669	J19	3688	K21	3704	E12	3720	D4	3736	D24	3753	K4	3770	K10	3791	D23	6670	K24	7689	F15	7751	K4	9703	D11	9720	F4	9736	L10	9784	C
2635	J10	2651	G7	2667	F6	2703	E13	2725	B2	2760	J3	2779	L8	3638	K6	3654	K23	3670	G21	3689	E15	3705	C13	3721	D2	3737	D20	3754	J2	3771	K12	3794	E16	6671	C19	7690	F16	7752	L4	9704	D10	9721	G3	9737	L12	9785	C
2636	L6	2652	H8	2668	F7	2704	E12	2726	B4	2762	J4	2780	L8	3639	J6	3655	E6	3671	J7	3690	E15	3706	E12	3722	D4	3738	E21	3755	K4	3772	K12	3795	C16	6672	D22	7691	F14	7753	L5	9705	D11	9722	G2	9738	L11	9786	E
2637	J8	2653	F5	2669	G9	2705	C14	2727	C4	2763	H3	2781	J14	3640	K6	3656	E8	3672	J7	3691	E16	3707	E14	3723	D2	3739	D21	3756	J2	3773	K12	3796	B15	6673	K24	7692	F15	7754	L5	9706	D11	9723	H5	9739	K12	9787	C
2638	K6	2654	J23	2670	F8	2706	C12	2728	C5	2764	H3	2782	H14	3641	J9	3657	H9	3673	K10	3692	E15	3708	E13	3724	D3	3740	G22	3757	H4	3774	J12	3797	C15	7635	G8	7693	D19	7760	J3	9707	D11	9724	H2	9740	K13	9788	E
2639	J9	2655	E6	2673	L2	2707	C7	2729	B5	2765	H3	2783	H13	3642	K6	3658	E8	3674	K10	3693	E16	3709	C13	3725	B2	3741	D21	3758	K4	3775	G11	3798	H11	7636	J21	7694	D20	7763	H5	9708	F11	9725	G6	9741	L13	9789	G
2640	E5	2656	E7	2674	L2	2708	C7	2730	B4	2768	K11	2784	F11	3643	J9	3659	F10	3677	H19	3694	E15	3710	C12	3726	C4	3742	F22	3759	K3	3777	J13	3799	C14	7637	J24	7695	D23	7764	H6	9709	F11	9726	G6	9742	L14	9790	G
2641	J9	2657	H9	2675	G9	2709	C13	2732	B3	2769	H11	2785	J13	3644	D6	3660	E10	3678	J19	3695	C20	3711	B11	3727	D2	3743	D8	3760	J3	3778	H13	3800	L23	7641	J9	7696	D23	7765	L16	9711	G12	9727	J5	9743	L14	9791	C
2642	L6	2658	E8	2676	E9	2710	C12	2733	D5	2770	H10	2786	F10	3645	H7	3661	F10	3679	J19	3696	C22	3712	C11	3728	D3	3744	D8	3761	G2	3779	L8	3803	K24	7642	K6	7697	D22	7768	L15	9712	D8	9728	K4	9744	L11	9792	C

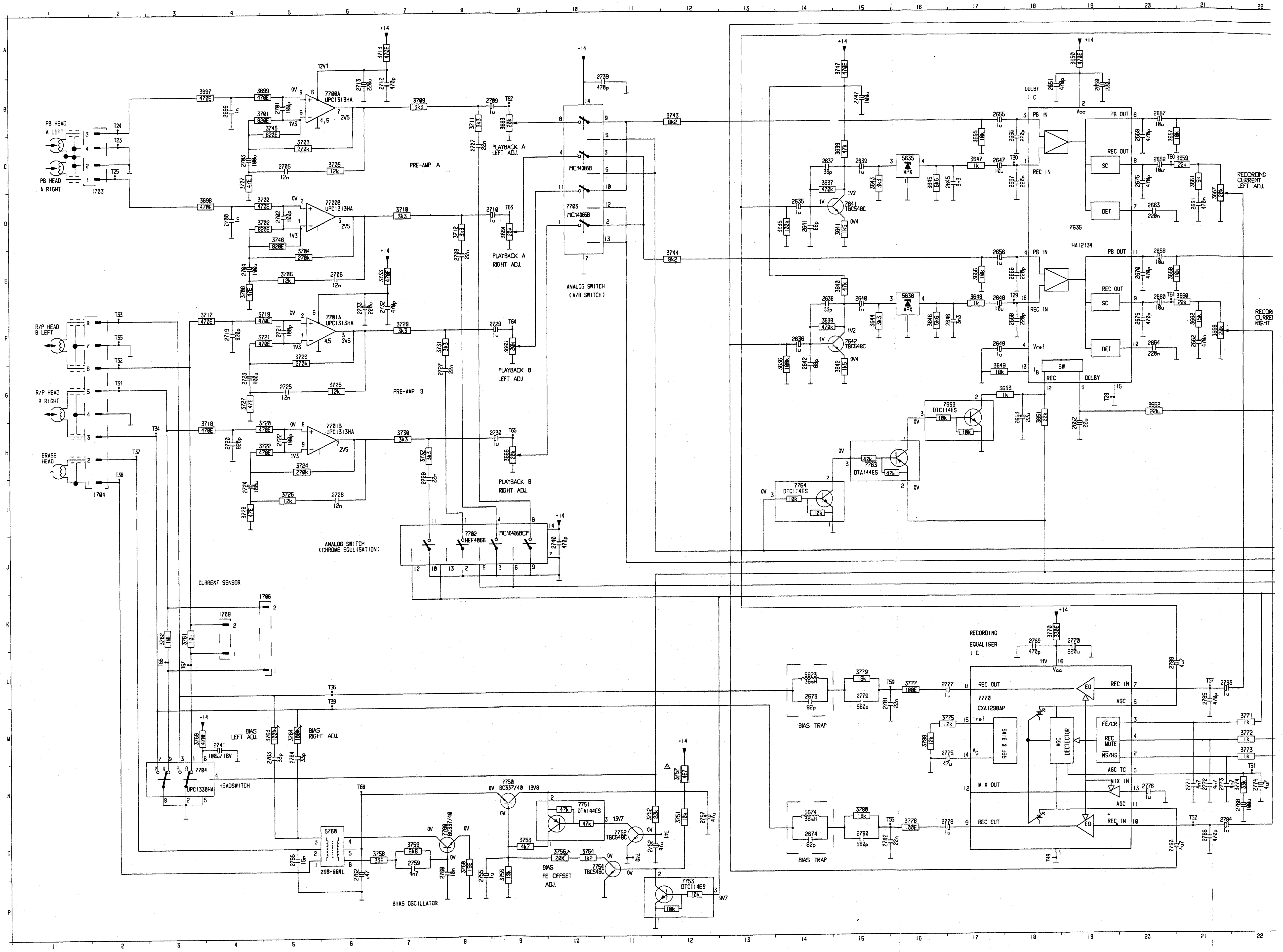


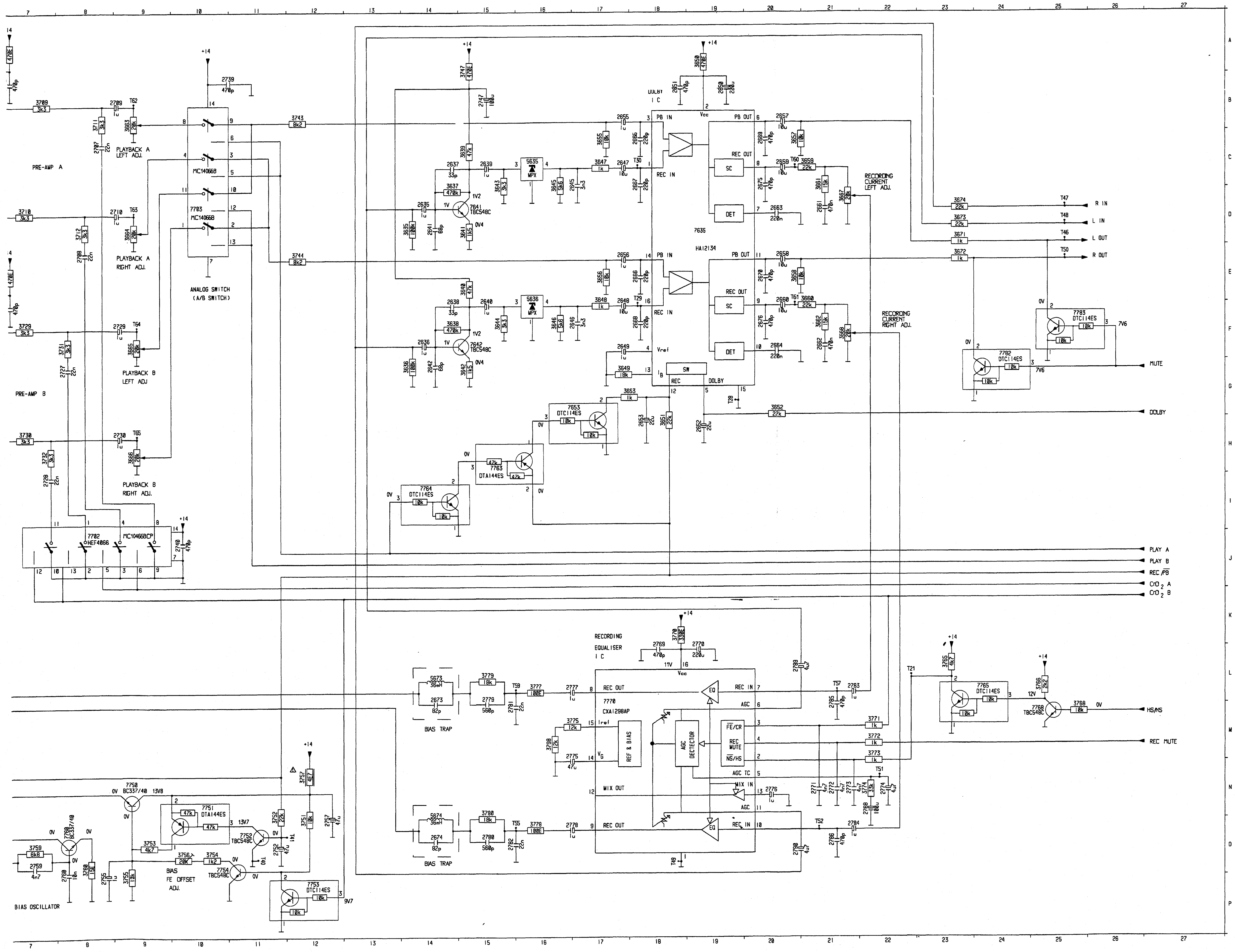
2787	J11	3646	D7	3662	E10	3680	D20	3697	F13	3713	G12	3729	B4	3745	E14	3762	F3	3780	L8	3804	K24
2789	J10	3647	H7	3663	B13	3681	D22	3698	F13	3714	F21	3730	B4	3747	J5	3763	H2	3782	F23	5635	H8
2790	H10	3648	E6	3664	B12	3682	G16	3699	E14	3715	G21	3731	B4	3748	H4	3764	H2	3783	F20	5636	D6
		3649	F7	3665	B7	3683	G15	3700	E12	3716	D21	3732	C4	3749	H19	3765	L15	3784	E21	5643	J22
		3650	G5	3666	B6	3684	G16	3701	E14	3717	E2	3733	D4	3750	H19	3766	L15	3785	D20	5673	L3
3635	J10	3651	F6	3667	B10	3685	K13	3702	E12	3718	E3	3734	F21	3751	K5	3768	K16	3786	D22	5674	K2
3636	K6	3652	H8	3668	B8	3687	K21	3703	E13	3719	D2	3735	J19	3752	K5	3769	F3	3787	B14	5760	H3
3637	J8	3653	G6	3669	J19	3688	K21	3704	E12	3720	D4	3736	D24	3753	K4	3770	K10	3791	D23	6670	K24
3638	K6	3654	K23	3670	G21	3689	E15	3705	C13	3721	D2	3737	D20	3754	J2	3771	K12	3794	E16	6671	C19
3639	J6	3655	E6	3671	J7	3690	E15	3706	E12	3722	D4	3738	E21	3755	K4	3772	K12	3795	C16	6672	D22
3640	K6	3656	E8	3672	J7	3691	E16	3707	E14	3723	D2	3739	D21	3756	J2	3773	K12	3796	B15	6673	K24
3641	J9	3657	H9	3673	K10	3692	E15	3708	E13	3724	D3	3740	G22	3757	H4	3774	J12	3797	C15	7635	G8
3642	K6	3658	E8	3674	K10	3693	E16	3709	C13	3725	B2	3741	D21	3758	K4	3775	G11	3798	H11	7636	J21
3643	J9	3659	F10	3677	H19	3694	E15	3710	C12	3726	C4	3742	F22	3759	K3	3777	J13	3799	C14	7637	J24
3644	D6	3660	E10	3678	J19	3695	C20	3711	B11	3727	D2	3743	D8	3760	J3	3778	H13	3800	L23	7641	J9
3645	H7	3661	F10	3679	J19	3696	C22	3712	C11	3728	D3	3744	D8	3761	G2	3779	L8	3803	K24	7642	K6

7653	G5	7698	D22	7770	H12	9713	D7	9729	J7	9745	J11	9793	C18	9809	L18	9825	J17	9841	F11	2800	G24
7654	D17	7700	D13	7782	K7	9714	C7	9730	J7	9746	J6	9794	C18	9810	L18	9826	K17	9842	K19	2801	K23
7655	C15	7701	C3	7783	K8	9715	C6	9731	L7	9747	J6	9795	E18	9811	C17	9827	K17	9844	F22	2814	G21
7682	H15	7702	C6	7784	L13	9716	E6	9732	L7	9750	G13	9796	E18	9812	C17	9828	K17	9845	F20	2815	G23
7683	H15	7703	C9	9700	F13	9717	E5	9733	L8	9780	C24	9797	F18	9813	C17	9829	L17	9846	H19	2816	G23
7684	H16	7704	E3	9701	C11	9718	F3	9734	K10	9781	E23	9798	H18	9814	C17	9830	L17			2837	F19
7685	K13	7750	K3	9702	C11	9719	F3	9735	K10	9783	K19	9799	H18	9815	E17	9831	C15			2838	F20
7689	F15	7751	K4	9703	D11	9720	F4	9736	L10	9784	C22	9800	H18	9816	F17	9832	F15			2839	G20
7690	F16	7752	L4	9704	D10	9721	G3	9737	L12	9785	C22	9801	H18	9817	F17	9833	H16			2840	G22
7691	F14	7753	L5	9705	D11	9722	G2	9738	L11	9786	B21	9802	J18	9818	H17	9834	H15			2841	G23
7692	F15	7754	L5	9706	D11	9723	H5	9739	K12	9787	C21	9803	J18	9819	H17	9835	H15			2842	F22
7693	D19	7760	J3	9707	D11	9724	H2	9740	K13	9788	E20	9804	J18	9820	H17	9836	J16			2850	G23
7694	D20	7763	H5	9708	F11	9725	G6	9741	L13	9789	G20	9805	J18	9821	H17	9837	K15			2882	F23
7695	D23	7764	H6	9709	F11	9726	G6	9742	L14	9790	G20	9806	K18	9822	J17	9838	K14				
7696	D23	7765	L16	9711	G12	9727	J5	9743	L14	9791	C18	9807	K18	9823	J17	9839	F19				
7697	D22	7768	L15	9712	D8	9728	K4	9744	L11	9792	C18	9808	K18	9824	J17	9840	K12	1707	K15	3805	K23



TAPE CORE CIRCUIT II


PB HEAD A LEFT
PB HEAD A RIGHT
1703
R/P HEAD B LEFT
R/P HEAD B RIGHT
ERASE HEAD
1704
7700A UPC1313HA
7700B UPC1313HA
7701A UPC1313HA
7701B UPC1313HA
PRE-AMP A
PRE-AMP B
PLAYBACK A LEFT ADJ.
PLAYBACK A RIGHT ADJ.
PLAYBACK B LEFT ADJ
PLAYBACK B RIGHT ADJ.
7703 MC14066B
ANALOG SWITCH (A/B SWITCH)
7702 HEF4066 MC14066BCP
ANALOG SWITCH (CHROME EQULISATION)
CURRENT SENSOR
1706
1708
7704 UPC1330HA
HEADSWITCH
BIAS LEFT ADJ.
BIAS RIGHT ADJ.
5760
BIAS OSCILLATOR
7750 BC337/40
7751 DTA144ES
7752 TBC548C
7753 DTC114ES
7754 TBC548C
BIAS FE OFFSET ADJ.
7641 TBC548C
7642 TBC548C
5635 MPX
5636 MPX
DOLBY IC
7635 HA12134
PB IN
PB OUT
REC IN
REC OUT
SC
DET
Vref
SW
REC
DOLBY
7653 DTC114ES
7763 DTA144ES
7764 DTC114ES
RECORDING CURRENT LEFT ADJ.
RECORDING CURRENT RIGHT
5673 36mH
5674 36mH
BIAS TRAP
RECORDING EQUALISER IC
7770 CXA1298AP
REF & BIAS
AGC DECTECTOR
EQ
FE/CR
REC MUTE
NS/HS
AGC TC
MIX IN
MIX OUT
AGC

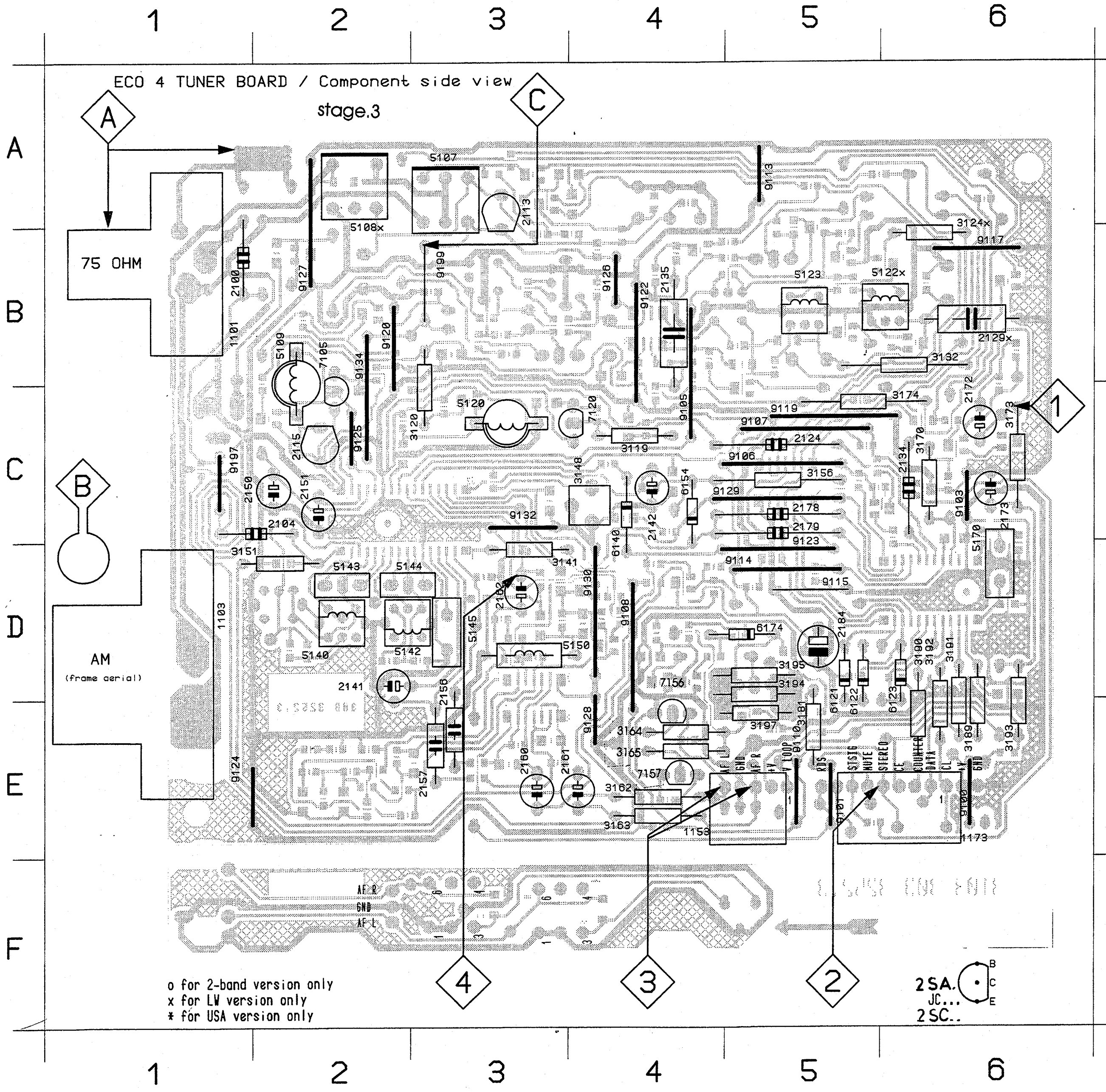

PRE-AMP A
PRE-AMP B
PLAYBACK A LEFT ADJ.
PLAYBACK A RIGHT ADJ.
PLAYBACK B LEFT ADJ
PLAYBACK B RIGHT ADJ.
ANALOG SWITCH (A/B SWITCH)
7703 MC14066B
7702 HEF4066 MC14066BCP
7641 TBC548C
7642 TBC548C
5635 MPX
5636 MPX
DOLBY IC
7635 HA12134
PB IN
REC IN
PB OUT
REC OUT
SC
DET
Vref
SW
REC
DOLBY
RECORDING CURRENT LEFT ADJ.
RECORDING CURRENT RIGHT ADJ.
7653 DTC114ES
7763 DTA144ES
7764 DTC114ES
R IN
L IN
L OUT
R OUT
7783 DTC114ES
7782 DTC114ES
MUTE
DOLBY
PLAY A
PLAY B
REC /PB
CrO2 A
CrO2 B
RECORDING EQUALISER IC
7770 CXA1298AP
Vcc
REC OUT
REC IN
AGC
EQ
Iref
VG
REF & BIAS
AGC DETECTOR
FE/CR
REC MUTE
NS/HS
AGC TC
MIX IN
MIX OUT
BIAS TRAP
7765 DTC114ES
7768 TBC548C
HS/NS
REC MUTE
7750 BC337/40
7751 DTA144ES
7752 TBC548C
7754 TBC548C
7753 DTC114ES
7760 BC337/40
BIAS FE OFFSET ADJ.
BIAS OSCILLATOR
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27

1703	C 2
1703	C 2
1703	B 2
1703	C 2
1704	I 2
1704	H 2
1704	H 2
1704	G 2
1704	G 2
1704	G 2
1704	F 2
1704	F 2
1706	K 4
1706	L 5
1708	K 4
1708	K 4
2635	D14
2636	F14
2637	C14
2638	E14
2639	C15
2640	E15
2641	D14
2642	G14
2645	C17
2646	F17
2647	C17
2648	E17
2649	F17
2650	B19
2651	B18
2652	H19
2653	H17
2655	B17
2656	E17
2657	B20
2658	E20
2659	C20
2660	E20
2661	D21
2662	F21
2663	D20
2664	F20
2665	C18
2666	E18
2667	C18
2668	F18
2669	C20
2670	E20
2673	L14
2674	O14
2675	C20
2676	F20
2699	B 4
2700	D 4
2701	B 5
2702	D 5
2703	C 4
2704	E 4
2705	C 5
2706	E 6
2707	C 8
2708	E 8
2709	B 9
2710	D 9
2712	B 7
2713	B 6
2719	F 4
2720	H 4
2721	F 5
2722	H 5
2723	G 4
2724	I 4
2725	G 5
2726	I 6
2727	G 8
2728	I 7
2729	F 9
2730	H 9
2732	F 7
2733	F 6
2739	B11
2740	J10
2741	M 4
2747	B15
2752	O11
2755	O 8
2757	N12
2759	O 7
2760	O 8
2762	O 6
2763	M 5
2764	M 5
2765	O 5
2768	N22
2769	K18
2770	K19
2771	N21
2772	N21
2773	N21
2774	N22
2775	M17
2776	N20
2777	L17
2778	O17
2779	L15
2780	O15
2781	M15
2782	O15
2783	L21
2784	O21
2785	L21
2786	O21
2789	L20
2790	O20
2791	M16
2792	O16
3635	D14
3636	G14
3637	C14
3638	F14
3639	C15
3640	E15
3641	D15
3642	G15
3643	C15
3644	F15
3645	C16
3646	F16
3647	C17
3648	E17
3649	G17
3650	A19
3651	H18
3652	G20
3653	H17
3655	C17
3656	E17
3657	C20
3658	E20
3659	C21
3660	E21
3661	C21
3662	F21
3663	B 9
3664	D 9
3665	F 9
3666	H 9
3667	D21
3668	F21
3671	D23
3672	E23
3673	D23
3674	D23
3697	B 4
3698	D 4
3699	B 5
3700	D 5
3701	B 5
3702	D 5
3703	C 5
3704	E 5
3705	C 6
3706	E 5
3707	C 4
3708	E 4
3709	B 7
3710	D 7
3711	B 8
3712	D 8
3713	A 7
3717	F 4
3718	H 4
3719	F 5
3720	H 5
3721	F 5
3722	H 5
3723	F 5
3724	H 5
3725	G 6
3726	I 5
3727	G 4
3728	I 4
3729	F 7
3730	H 7
3731	F 8
3732	H 7
3733	E 7
3743	B12
3744	E12
3745	B 5
3746	D 5
3747	A15
3751	N12
3752	N11
3753	O 9
3754	O10
3755	O 9
3756	O10
3757	N12
3758	O 7
3759	O 7
3760	O 8
3761	K 3
3762	K 3
3763	M 5
3764	M 5
3765	L23
3766	L25
3768	M25
3769	M 3
3770	K18
3771	M22
3772	M22
3773	M22
3774	N22
3775	M17
3777	L16
3778	O16
3779	L15
3780	N15
3798	M16
5635	C16
5636	E16
5673	L14
5674	N14
5760	P 6
7635	E19
7641	D15
7642	F15
7653	H17
7700A	B 6
7700B	D 6
7701A	F 6
7701B	H 6
7702	K 8
7703	E10
7704	Q 3
7750	N 9
7751	O10
7752	O11
7753	P12
7754	O11
7760	O 8
7763	I16
7764	J14
7765	L24
7768	M25
7770	N17
7782	G25
7783	G24

PCS 63 159

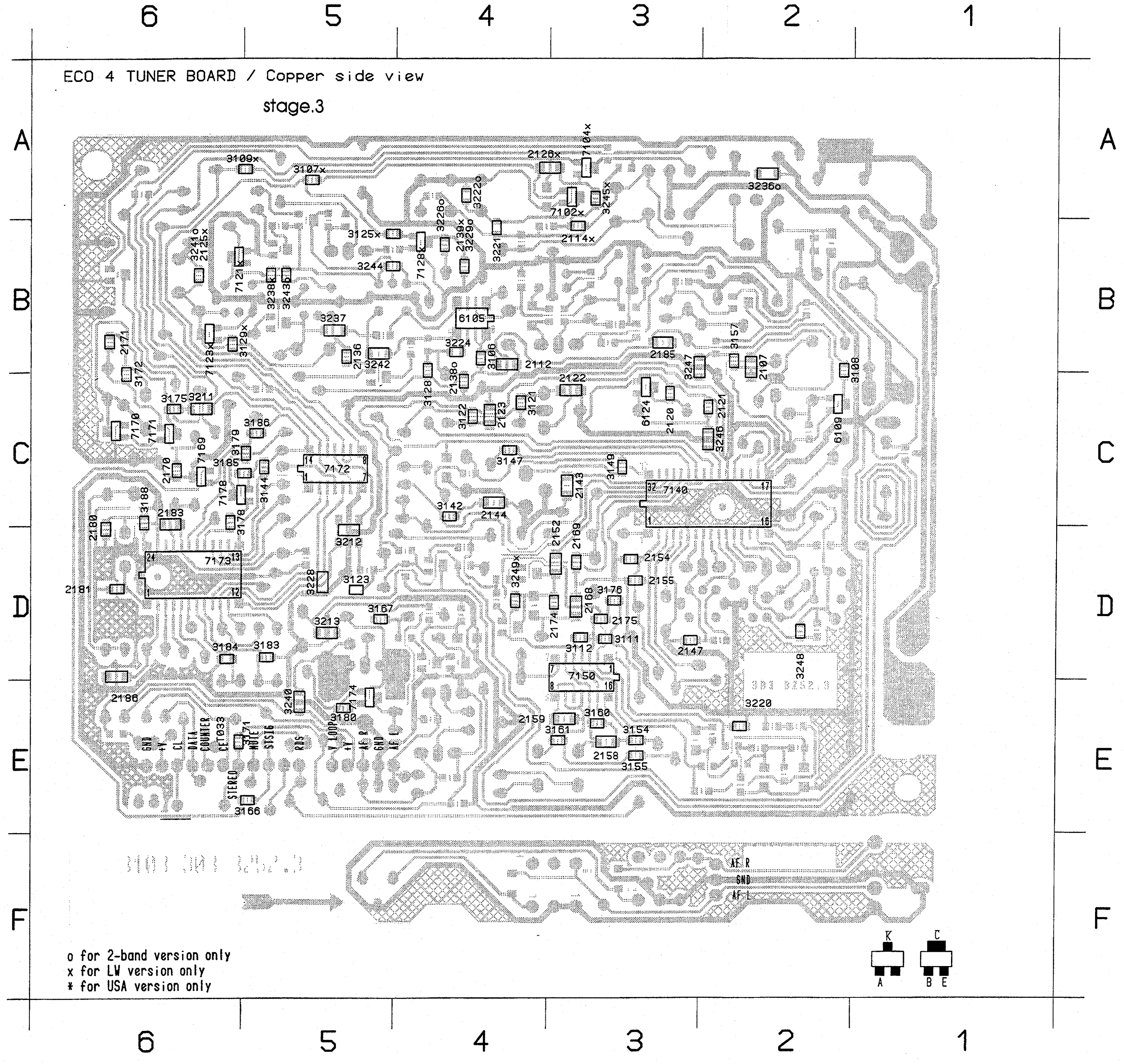
ECO4 COMPONENT AND CHIP LAYOUT - For all versions produced from wk 249 onwards except /22.

1101	B	1
1103	D	1
1153	E	5
1173	E	6
2100	A	1
2104	C	1
2113	A	3
2115	C	2
2124	C	4
2129x	B	6
2134	C	6
2135	B	4
2141	D	2
2142	C	4
2150	C	2
2151	C	2
2156	D	3
2157	E	3
2160	E	3
2161	E	4
2162	D	3
2172	C	6
2173	C	6
2178	C	4
2179	C	4
2184	D	5
3119	C	4
3120	B	3
3124x	B	6
3132	B	5
3141	D	3
3148	C	3
3151	D	1
3156	C	4
3162	E	4
3163	E	4
3164	E	4
3165	E	4
3170	C	6
3173	C	6
3174	C	5
3181	D	5
3189	D	6
3190	D	6
3191	D	6
3192	D	6
3193	E	6
3194	D	4
3195	D	4
3197	E	4
5107	A	3
5108x	A	2
5109	C	2
5120	C	3
5122x	B	5
5123	B	5
5140	D	2
5142	D	3
5143	D	2
5144	D	2
5145	D	3
5150	D	3
5170	D	6
6121	D	5
6122	D	5
6123	D	6
6140	D	4
6154	C	4
6174	D	4
7105	C	2
7120	C	4
7156	E	4
7157	E	4
9100	E	6
9101	E	5
9103	C	6
9105	C	4
9106	C	4
9107	C	5
9108	D	4
9110	E	5
9113	A	5
9114	D	5
9115	D	5
9117	B	6
9119	C	5
9120	C	2
9122	B	4
9123	D	4
9124	E	1
9125	C	2
9126	B	4
9127	B	2
9128	D	4
9129	C	4
9130	D	4
9132	C	3
9134	B	2
9197	C	1
9199	B	3



o for 2-band version only
x for LW version only
* for USA version only

7178	C	5
7104x	A	3
7121x	B	6
7123x	B	6
7128x	B	4
7140	C	2
7150	D	3
7169	C	6
7170	C	6
7171	C	6
7172	C	5
7173	D	6
7174	E	5
3242	B	5
3243o	B	5
3244	B	4
3245x	A	3
3246	C	2
3247	B	2
3248	D	2
3249x	D	4
6105	B	4
6109	C	2
6124	C	3
7102x	A	3
3220	E	2
3221	B	4
3222o	A	4
3224	B	4
3226o	B	4
3228	D	5
3229o	B	4
3236o	A	2
3237	B	5
3238x	B	5
3240	E	5
3241o	B	6
3176	D	3
3178	C	6
3179	C	5
3180	E	5
3183	D	5
3184	D	6
3185	C	5
3186	C	5
3188	C	6
3211	C	6
3212	D	5
3213	D	5
3147	C	4
3149	C	3
3154	E	3
3155	E	3
3157	B	2
3160	E	3
3161	E	3
3166	E	5
3167	D	5
3171	E	5
3172	C	6
3175	C	6
3108	B	2
3109x	A	5
3111	D	3
3112	D	3
3121	C	4
3122	C	4
3123	D	5
3125x	B	4
3128	B	4
3129x	B	6
3142	C	4
3144	C	5
2169	D	3
2170	C	6
2171	B	6
2174	D	3
2175	D	3
2180	D	6
2181	D	6
2183	C	6
2185	B	3
2186	D	6
3106	B	4
3107x	A	5
2136	B	5
2138o	C	4
2139x	B	4
2143	C	3
2144	C	4
2147	D	3
2152	D	3
2154	D	3
2155	D	3
2158	E	3
2159	E	3
2168	D	3
T033	E	5
T036	B	6
T038	D	6
2107	B	2
2112	B	4
2114x	B	3
2120	C	3
2121	C	2
2122	C	3
2123	C	4
2125x	B	6
2126x	A	3
T015	C	6
T016	A	6
T020	E	4
T021	E	4
T022	E	5
T023	D	5
T027	E	6
T028	E	6
T029	E	6
T030	E	6
T031	E	6
T032	E	5
T001	B	1
T002	B	1
T005	E	1
T006	D	1
T007	D	2
T008	D	2
T009	B	2
T010	D	3
T011	C	3
T012	D	2
T013	E	2
T014	D	3



o for 2-band version only
x for LW version only
* for USA version only

TUNER Adjus

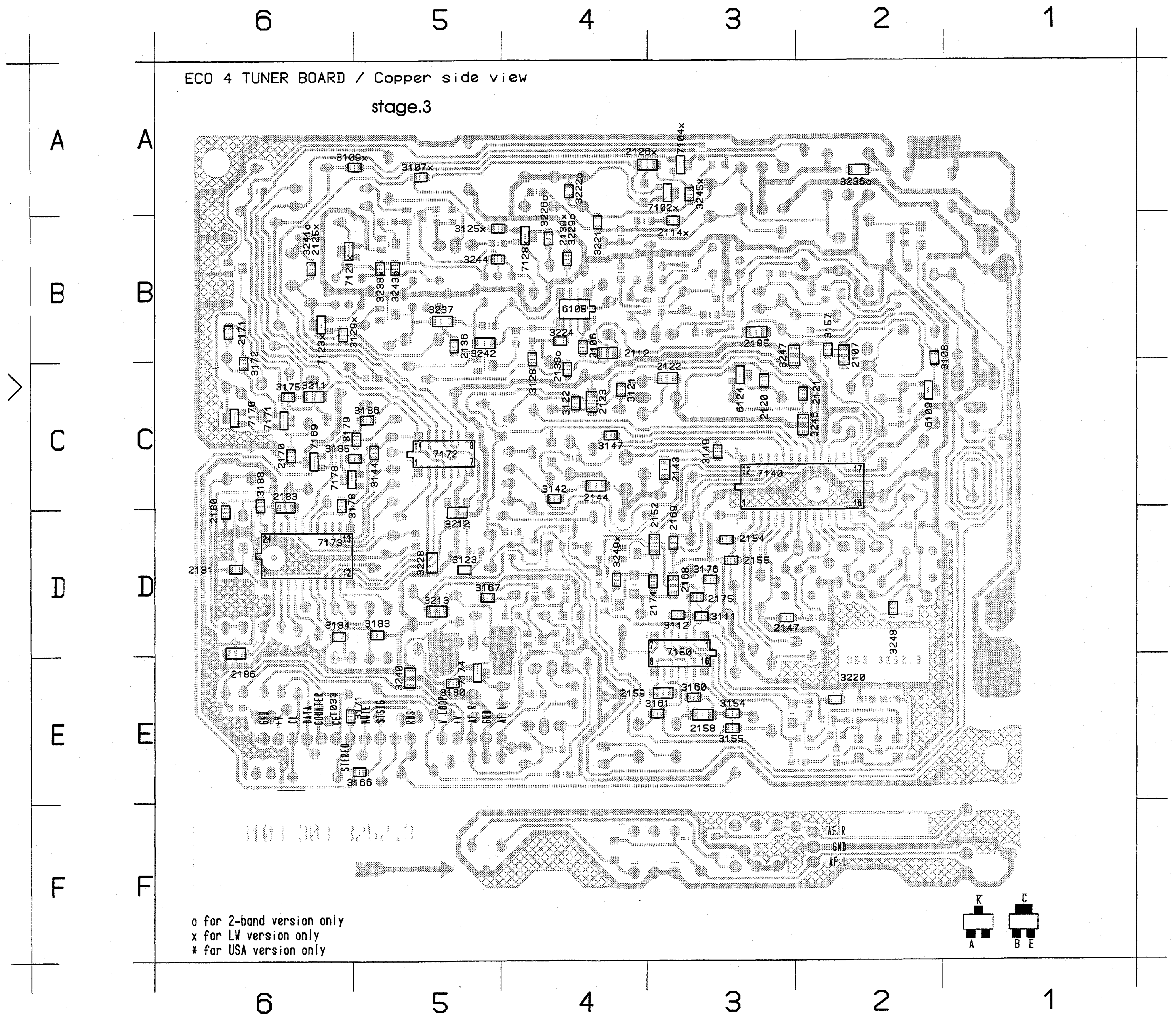
Waverange
VARICAP ALIGN
FM /00/01/05/10/ 87.5 - 108MHz
FM /14 East Eur 65.81 - 108MH
MW /01/17 2-band version 530 - 1710kHz
LW /00/05/10/14 153 - 279kHz
MW /00/05/10/14 522 - 1611kHz
FM - RF
FM /00/01/05/10/
FM /14 East Europe
VCO
FM
AM - IF
MW
AM - RF
LW
MW /00/05/10/14 3-band version
MW /01/17 2-band version

* Use Service Test

↕ repeat

onwards except /22.

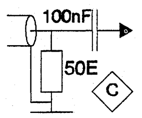
7178	C	5
7104x	A	3
7121x	B	6
7123x	B	6
7128x	B	4
7140	C	2
7150	D	3
7169	C	6
7170	C	6
7171	C	6
7172	C	5
7173	D	6
7174	E	5
3242	B	5
3243o	B	5
3244	B	4
3245x	A	3
3246	C	2
3247	B	2
3248	D	2
3249x	D	4
6105	B	4
6109	C	2
6124	C	3
7102x	A	3
3220	E	2
3221	B	4
3222o	A	4
3224	B	4
3226o	B	4
3228	D	5
3229o	B	4
3236o	A	2
3237	B	5
3238x	B	5
3240	E	5
3241o	B	6
3176	D	3
3178	C	6
3179	C	5
3180	E	5
3183	D	5
3184	D	6
3185	C	5
3186	C	5
3188	C	6
3211	C	6
3212	D	5
3213	D	5
3147	C	4
3149	C	3
3154	E	3
3155	E	3
3157	B	2
3160	E	3
3161	E	3
3166	E	5
3167	D	5
3171	E	5
3172	C	6
3175	C	6
3108	B	2
3109x	A	5
3111	D	3
3112	D	3
3121	C	4
3122	C	4
3123	D	5
3125x	B	4
3128	B	4
3129x	B	6
3142	C	4
3144	C	5
2169	D	3
2170	C	6
2171	B	6
2174	D	3
2175	D	3
2180	D	6
2181	D	6
2183	C	6
2185	B	3
2186	D	6
3106	B	4
3107x	A	5
2136	B	5
2138o	C	4
2139x	B	4
2143	C	3
2144	C	4
2147	D	3
2152	D	3
2154	D	3
2155	D	3
2158	E	3
2159	E	3
2168	D	3
T033	E	5
T036	B	6
T038	D	6
2107	B	2
2112	B	4
2114x	B	3
2120	C	3
2121	C	2
2122	C	3
2123	C	4
2125x	B	6
2126x	A	3
T015	C	6
T016	A	6
T020	E	4
T021	E	4
T022	E	5
T023	D	5
T027	E	6
T028	E	6
T029	E	6
T030	E	6
T031	E	6
T032	E	5
T001	B	1
T002	B	1
T005	E	1
T006	D	1
T007	D	2
T008	D	2
T009	B	2
T010	D	3
T011	C	3
T012	D	2
T013	E	2
T014	D	3


6
5
4
3
2
1
A
B
C
D
E
F
stage.3
3109x
3107x
2126x
7104x
3245x
7102x
2114x
3236o
3125x
3244
3222o
3226o
3229o
2139x
7128
3221
3241o
2125x
7121x
3238x
3243o
3237
6105
3224
3106
2112
2185
3157
2107
3108
2171
3172
7123x
3129x
3242
2136
3128
2138o
2122
3122
2123
3121
6124
2120
3247
2121
3246
6109
3175
3211
2170
7171
7169
3185
3179
3186
7172
3147
3149
7140
2143
3188
2183
7178
3144
3142
2144
3212
2180
7173
2181
3249x
2152
2169
2154
2155
3228
3123
3176
2168
2174
2175
3213
3167
3112
3111
2147
3184
3183
3248
7150
3220
2186
3240
7174
3180
2159
3160
3161
3154
2158
3155
3166
GND
CL
DATA
COUNTER
CE
RDS
STEREO
AF R
GND
AF L
K
C
A
B E

ECO 4 TUNER BOARD / Copper side view

o for 2-band version only
x for LW version only
* for USA version only

TUNER Adjustment table (ECO 4 FM/MW- and FM/MW/LW - versions)

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM /00/01/05/10/17			108 MHz	5120	1	8 ± 0.2V
87.5 - 108MHz			87.5MHz	check		4.1 ± 0.5V
FM /14 East Europe			108 MHz	5120		8V ± 0.2V
65.81 - 108MHz			65.81 MHz	check		0.8 ± 0.4V
MW /01/17 2-band version			1710kHz	5123		9V ± 0.1V
530 - 1710kHz			530kHz	check		1V ± 0.4V
LW /00/05/10/14			279kHz	5122		8V ± 0.2V
153 - 279kHz			153kHz	check		1V ± 0.4V
MW /00/05/10/14			1611kHz	5123		8V ± 0.1V
522 - 1611kHz			522kHz	check		1V ± 0.4V
FM - RF						
FM /00/01/05/10/17	108MHz	A mod=1kHz Δf=22.5kHz	108MHz	2115	3	MAX ↕
	87.5MHz		87.5MHz	5109		
FM /14 East Europe	108MHz		108MHz	2115		
	65.81MHz		65.81MHz	5109		
VCO						
FM	98 MHz, 1mV continuous wave	A	98MHz	3148	2	152 ± 1 kHz
AM - IF						
MW	540kHz Δf = 10kHz as low as possible		540kHz	5142 5140	4	symmetrical and max height
AM - RF						
LW	198kHz	B mod=1kHz 30% AM	198kHz	5108	4	MAX
MW /00/05/10/14 3-band version	1494kHz		1494kHz	2113		MAX ↕
	549kHz		549kHz	5107		
MW /01/17 2-band version	1500kHz		1500kHz	2113		
	550kHz		550kHz	5107		

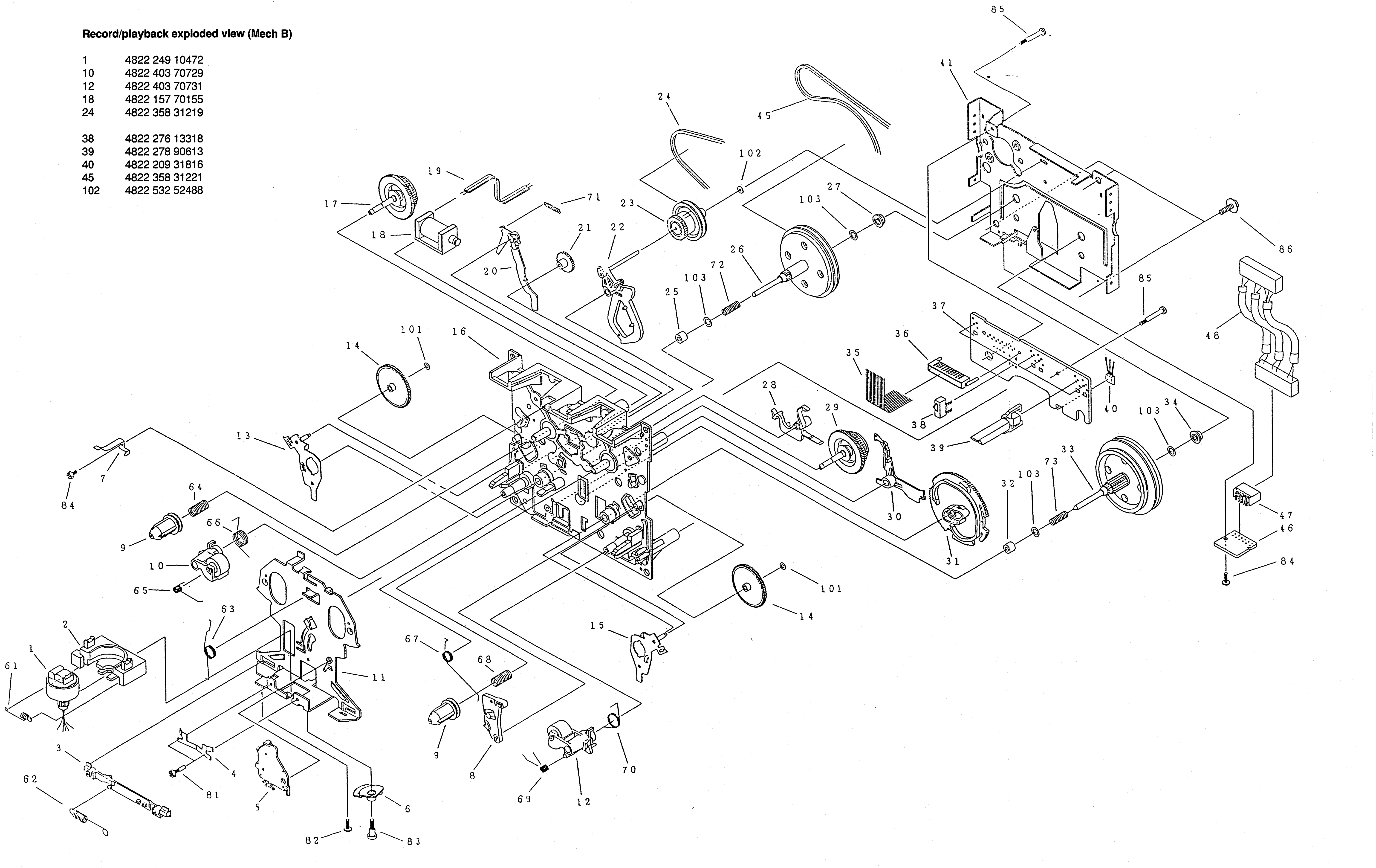
* Use Service Test Program. By selecting the TUNER TEST test frequencies will be stored as preset frequ. automatically.

↕ repeat

Note : Please read /00 as /20, /01 as /21, /17 as /37 etc.

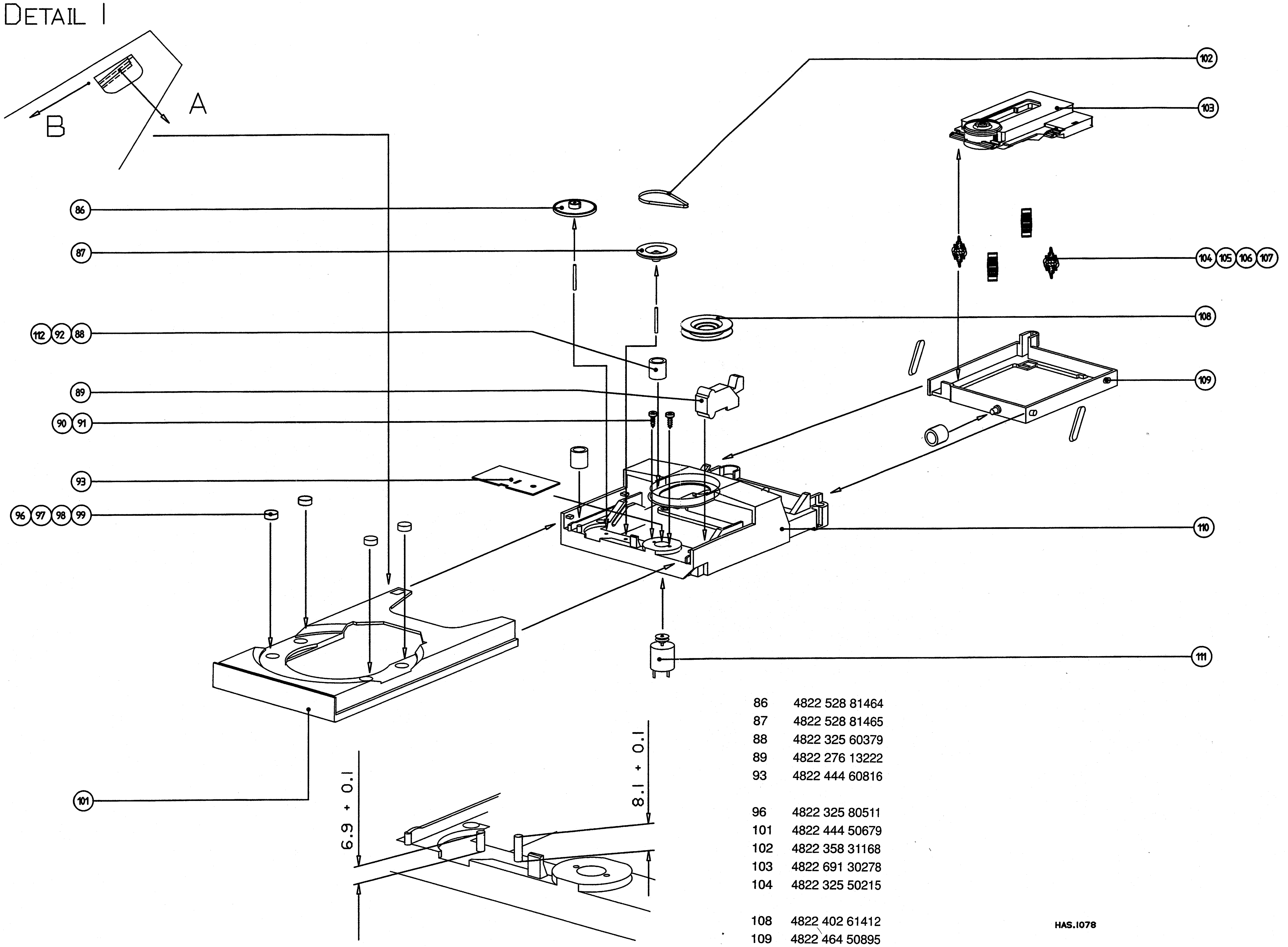
Record/playback exploded view (Mech B)

1	4822 249 10472
10	4822 403 70729
12	4822 403 70731
18	4822 157 70155
24	4822 358 31219
38	4822 276 13318
39	4822 278 90613
40	4822 209 31816
45	4822 358 31221
102	4822 532 52488


85
41
24
45
102
19
71
17
18
23
27
103
86
21
22
20
26
72
103
25
85
37
36
35
48
101
16
14
28
29
38
40
103
34
13
39
33
73
103
32
7
84
64
30
47
46
66
9
10
31
84
65
101
63
14
15
2
1
61
11
67
68
3
62
4
81
5
6
9
8
69
12
70
82
83

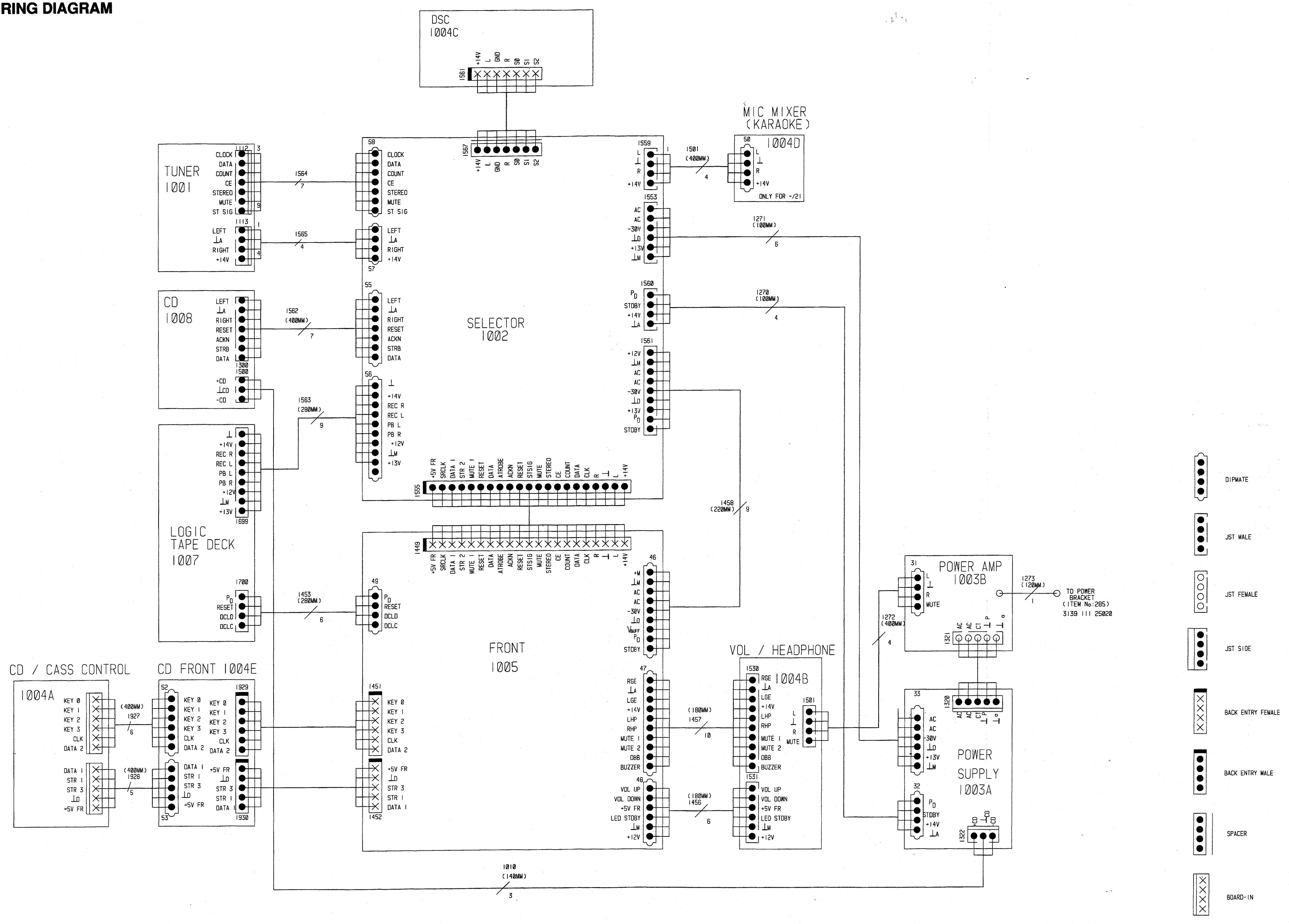
PCS 62 860

CD EXPLODED VIEW


DETAIL I
A
B
102
103
86
87
112 92 88
89
90 91
93
96 97 98 99
104 105 106 107
108
109
110
111
101
6.9 + 0.1
8.1 + 0.1
HAS.1078

86	4822 528 81464
87	4822 528 81465
88	4822 325 60379
89	4822 276 13222
93	4822 444 60816
96	4822 325 80511
101	4822 444 50679
102	4822 358 31168
103	4822 691 30278
104	4822 325 50215
108	4822 402 61412
109	4822 464 50895
110	4822 444 50678
111	4822 361 21492

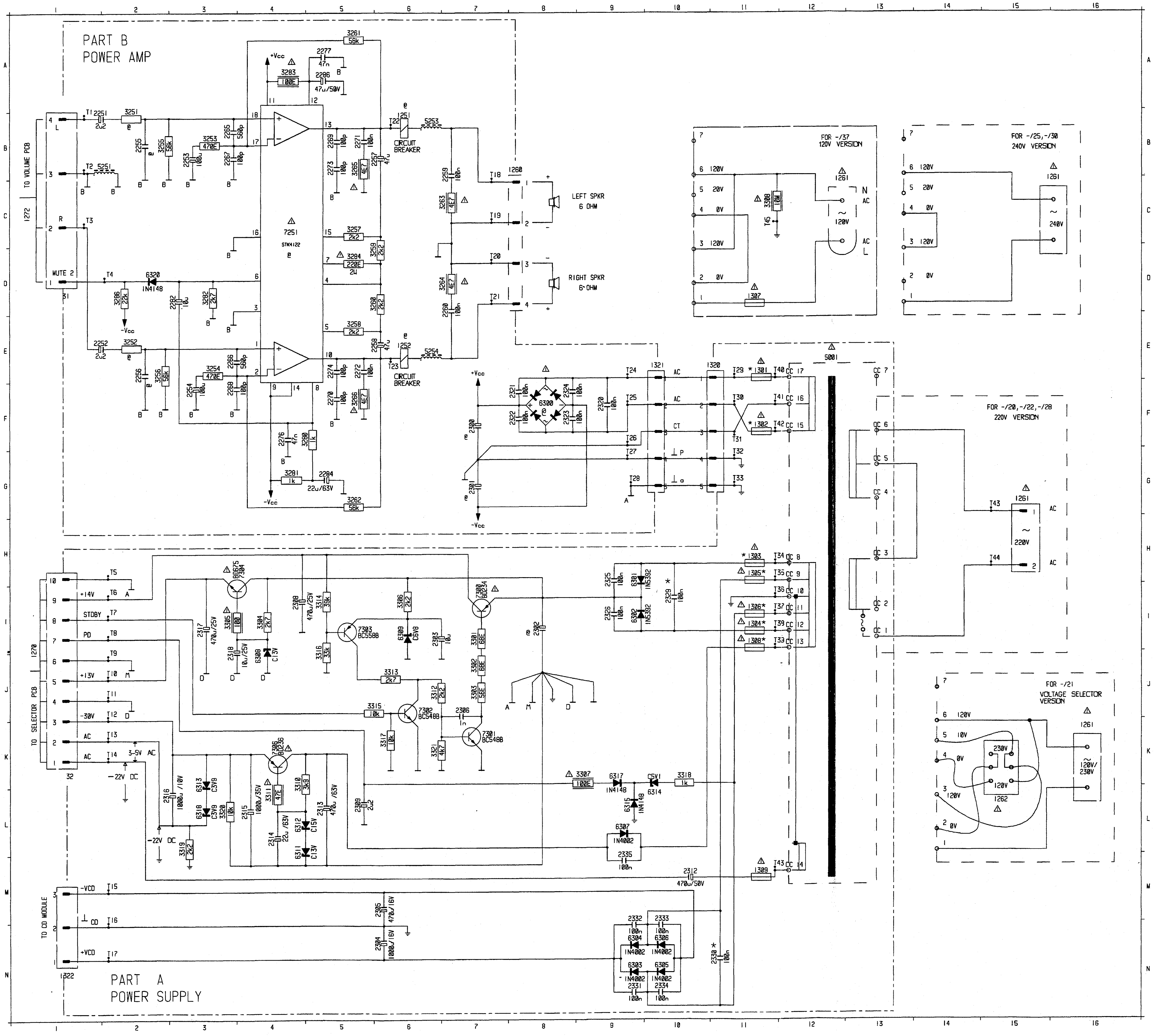
WIRING DIAGRAM



DSC
1004C
1561
1567
+14V L GND R S0 S1 S2
MIC MIXER
(KARAOKE)
1004D
ONLY FOR -/21
1559
1501
(400MM)
4
TUNER
1001
1112
1113
1564
7
1565
4
CLOCK
DATA
COUNT
CE
STEREO
MUTE
ST SIG
LEFT
RIGHT
+14V
CD
1008
1300
1500
1562
(400MM)
7
RESET
ACKN
STRB
+CD
-CD
1563
(200MM)
9
LOGIC
TAPE DECK
1007
1699
1700
1453
(200MM)
6
REC R
REC L
PB L
PB R
+12V
+13V
SELECTOR
1002
1553
1271
(100MM)
6
1560
1270
(100MM)
4
STDBY
1561
AC
-30V
1555
1449
1458
(220MM)
9
+5V FR
SRCLK
DATA 1
STR 2
MUTE 1
RESET
DATA
ATROBE
ACKN
STSIG
FRONT
1005
VBUFF
CD / CASS CONTROL
1004A
1927
(400MM)
6
1928
(400MM)
5
CD FRONT 1004E
1929
1930
1451
1452
KEY 0
KEY 1
KEY 2
KEY 3
CLK
DATA 2
DATA 1
STR 1
STR 3
VOL / HEADPHONE
1004B
1530
1531
1501
1457
(180MM)
10
1456
(180MM)
6
RGE
LGE
LHP
RHP
MUTE 1
MUTE 2
DBB
BUZZER
VOL UP
VOL DOWN
LED STDBY
POWER AMP
1003B
1321
1273
(120MM)
1
TO POWER
BRACKET
(ITEM No:285)
3139 111 25020
1272
(400MM)
4
POWER
SUPPLY
1003A
1320
1322
1010
(140MM)
3
DIPMATE
JST MALE
JST FEMALE
JST SIDE
BACK ENTRY FEMALE
BACK ENTRY MALE
SPACER
BOARD-IN

PCS 63 149

POWER CIRCUIT DIAGRAM


PART B
POWER AMP
PART A
POWER SUPPLY
TO VOLUME PCB
TO SELECTOR PCB
TO CD MODULE
7251
STK4122
CIRCUIT BREAKER
LEFT SPKR 6 OHM
RIGHT SPKR 6 OHM
MUTE
STBY
PD
+14V
+13V
-30V
AC
-VCD
+VCD
+Vcc
-Vcc
FOR -/37 120V VERSION
FOR -/25,-/30 240V VERSION
FOR -/20,-/22,-/28 220V VERSION
FOR -/21 VOLTAGE SELECTOR VERSION
BD675 7304
BD234 7300
BD236 7306
BC558B 7303
BC548B 7302
BC548B 7301
1N4148
1N4002
1N5392
C13V
C5V1
C39V
C15V
5001
1270
1272
1322

1251	B 6
1252	E 6
1260	B 7
1261	G15
1301	E11
1302	F11
1303	H11
1304	I11
1305	H11
1306	I11
1307	D11
1308	I11
1309	M11
1320	E11
1321	E10
1322	N 1
2251	B 1
2252	E 1
2253	B 3
2254	F 3
2255	B 2
2256	E 2
2257	B 6
2258	E 6
2259	B 7
2260	D 7
2265	B 3
2266	E 3
2267	B 3
2268	F 3
2269	B 5
2270	F 5
2271	B 5
2272	E 5
2273	B 5
2274	E 5
2276	F 4
2277	A 5
2282	D 3
2284	G 5
2286	A 5
2300	F 7
2301	G 7
2302	I 8
2303	I 6
2304	N 6
2305	M 6
2306	J 7
2308	I 4
2309	L 5
2312	M10
2313	L 5
2314	L 4
2315	L 4
2316	L 2
2317	I 3
2318	I 3
2320	F 9
2321	F 8
2322	F 8
2323	F 8
2324	F 8
2325	H 9
2326	I 9
2329	I10
2330	N11
2331	N 9
2332	M 9
2333	M10
2334	N10
2335	M 9
31	D 1
32	K 1
3251	B 2
3252	E 2
3253	B 3
3254	E 3
3255	B 2
3256	E 2
3257	C 5
3258	E 5
3259	D 6
3260	D 6
3261	A 5
3262	G 5
3263	C 7
3264	D 7
3265	B 5
3266	F 5
3280	F 5
3281	G 4
3282	D 3
3283	A 4
3284	D 5
3286	D 2
3301	I 7
3302	J 7
3303	J 7
3304	I 4
3305	I 3
3306	I 6
3307	K 9
3308	C11
3310	K 4
3311	L 4
3312	J 6
3313	J 6
3314	I 5
3315	J 6
3316	I 5
3317	K 6
3318	K10
3319	L 3
3320	L 3
3321	K 6
5251	B 2
5253	B 6
5254	E 6
6300	F 8
6301	H 9
6302	I 9
6303	N 9
6304	N 9
6305	N10
6306	N10
6307	L 9
6308	J 4
6309	I 6
6311	L 4
6312	L 4
6313	K 3
6314	L10
6315	L 9
6317	K 9
6318	L 3
6320	D 2
7300	I 7
7301	K 7
7302	J 6
7303	I 5
7304	H 4
7306	K 4
CC 1	I13
CC 10	I12
CC 11	I12
CC 12	I12
CC 13	I12
CC 14	M12
CC 15	F12
CC 16	F12
CC 17	E12
CC 2	I13
CC 3	H13
CC 4	G13
CC 5	G13
CC 6	F13
CC 7	E13
CC 8	H12
CC 9	H12

IC 7251 VOLTAGES (V)

Pin No	FW20	FW30	FW40
1	-0.1	-0.1	-0.18
2	-0.1	-0.1	-0.18
3	0	0	0
4	-13.4	-18.5	-19.3
5	-1.2	-1.0	-1.36
6	0	0	0
7	15.5	21.3	-22.13
8	-16.0	-22.0	-22.8
9	-16.2	-22.1	-23.0
10	0	0	0
11	16.4	22.1	23.0
12	15.3	21.0	21.8
13	0	0	0
14	-16.2	-22.1	-23.0
15	-1.2	-1.0	-1.36
16	0	0	0
17	-0.1	-0.1	-0.18
18	-0.1	-0.1	-0.18

TRANSISTOR VOLTAGE

Pin No	ITEM NO					
	7300	7301	7302	7303	7304	7306
e	21 5V	0V	0V	6 7V	13.0V	-30 0V
b	20 8V	0.6V	0V	6.2V	12 3V	-29.2V
c	14 0V	20 6V	0.9V	1 3V	21 5V	-47 2V

NOTE FOR ITEMS MARKED @

ITEMS	FW20	FW30	FW40
7251	STK4112	STK4112	STK4132
6300	D3SB	D5SB	D5SB
2300 2301	3300u /25V	3300u/35V	
1251 1252	1 75A	2 0A	2 5A
3251 3252	22k	10k	3k3
2255 2256	100pF	270pF	680pF
2302	2200uF		3300uF

Item Marked *	FW20		FW30		FW40		
	All versions except /37	/37	All versions except /37	/37	Other version	/33	/37
1301	2A	3.15A	3.15A	5A	4A	4A	5A
1302							
1303	1A	1 25A	1A	1 25A		1A	1.25A
1304							
1305	0.63A	1.25A	0.63A	1.25A	0.63A	0 63A	1.25A
1306							
1307	-	2A	-	2A	-	1.6A	2A
1308	0.63A	1.25A	0.63A	1.25A	0.63A	0 63A	1.25A
1309							

* NOT FOR /37

FW20, FW21, FW30, FW31, FW40 & FW41

A96 - 151

Service
Service
Service

Product Service Group CE Audio

Service Information

Symptom:
CD does not function due to dust collection on the CD lens. When cleaning disc is used, it merely moves the dust into the chamber in which the CD lens is mounted.

Fault:
The problem is due to the air circulation within the set.

Solution:
The problem is solved by mounting a dust cover over the CD lens area as shown in Figure 1 (For sets without transformer shield) and Figure 2 (For sets with transformer shield).
The service code for the dust cover is 4822 466 10931.

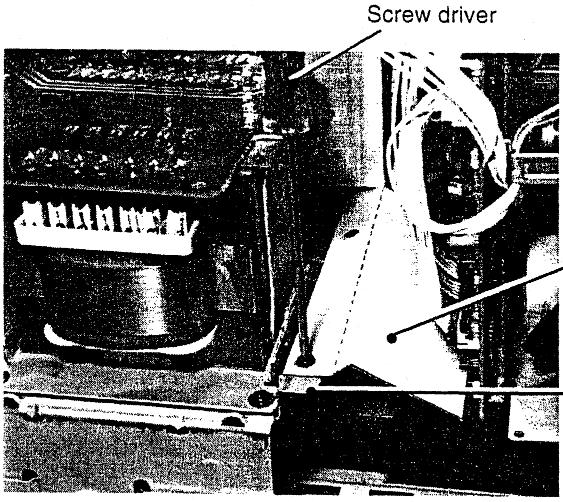


Fig. 1 Set without Transformer shield

Tighten the Dust cover with 2 screws

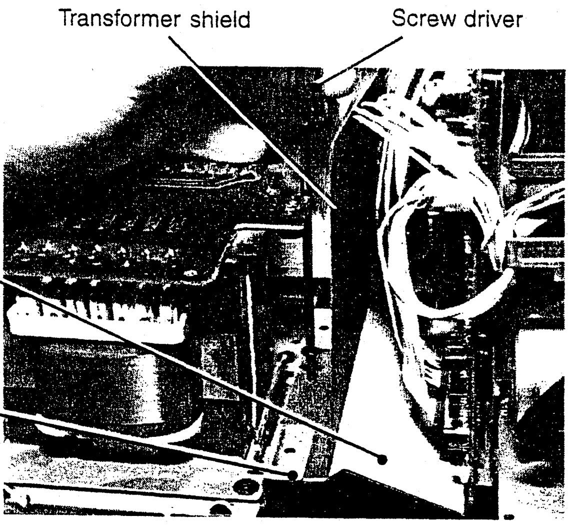


Fig. 2 Set with Transformer shield

Tighten mounting screw with the Dust cover place between Transformer shield and U-bracket.